WOOD

Combined With

WOOD PRODUCTS

January, 1952

Col. W. B. Greeley

See Page 23 — WOOD SALUTES

Furniture Production

Drexel, Cavalier and Buckstaff operations for better furniture production will be found in this issue.

Engineers and Lumber

Where the St. Louis office of the Corps of Engineers fits in the Defense purchasing picture is explained on page 25.

15 Wood Wonders

The 15 products they said couldn't be made in 1917 are reported on by Armin Elmendorf on page 26.

See These Features

- New Glue Spreader
- Materials Handling at Box Plants
- Cableway Logging
- Carbide Saws
- Making Long Handles
- Woodictionary
- Markets
- Trends

A Vance Publication

The National Management and News Magazine of the Forest Products Industry.

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The WHITNEY 510 Shaper is designed for medium to light production, handling with ease and accuracy a wide variety of furniture and novelty parts, panels, tops, handles and backs.

This new shaper is of typical Whitney quality construction. An entirely new design permits many manufacturing economies without deviating from Whitney high standards of accuracy and quality.

For a low cost, economical shaper for precision and fine production work don't miss this opportunity to get acquainted with the features of this shaper. Send today for complete information. Ask for Bulletin M1.

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BAXTER D. WHITNEY & SON, Inc.

FINE WOODWORKING MACHINERY

PLANERS • SHAPERS • VARIETY SAWS • MORTISERS • BACK KNIFE LATHES

WINCHENDON, MASSACHUSETTS, U. S. A.

WOOD

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WOOD PRODUCTS

Volume 57 No. 1

Forestry
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Mauk Talk

A child psychologist was recently quoted thusly, "If your child becomes unmanageable, quickly switch his attention." His what?

• • •

But there are other ways. A father in Seattle chained his adolescent daughter to a chair to keep her home nights. Sounds like a good idea. Doesn't do any good these days just to take all their clothes away from them.

• • •

Girls in uniform once again, limited service only, 'cuz we heard of a sailor who tried a breast stroke and got slapped down by a Wave.

• • •

The more exact your order, the more exactly we'll fill it. The MAUK Lumber Co. takes pride in making you proud of our judgement.

Place your order with MAUK and be confident in your choice.

• • •

Simple Celia says remember on these cold nights, one good turn gets all the blankets.

• • •

Poetic license—a thing of beauty has joy rides forever.

• • •

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Seattle 1, Washington

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Toledo, Ohio

Industry Trends

Challenge of the Month

"Somebody said that it couldn't be done . . . so they did it." To accomplish the "impossible" has seemed to be the inspirational incentive that has guided the swift growth of American industry down through the years. In no single area of activity can be found greater evidence of invention under pressure of great necessity than in the forest products industries. On page 26 will be found a survey of 15 forest products—amazing developments—no single one of which was in existence before World War One. American inventive genius faces an ever increasing challenge, and it is with justifiable pride that the forest products industries accept their share of responsibility for the still greater creative developments necessity may inspire.

HOUSING

Prefabrication to Set New Standards

The PHMI president reported at a recent meeting that the production of factory-made homes during the first nine months of 1951 has matched the industry's output for the corresponding period of last year. This was accomplished despite a drop of 23 percent in all new housing activity and in the face of tough competition from conventional builders.

President Taylor predicted that with further research and development, the industry will be producing "a place to live as far superior in appearance, comfort features and cost, as the present day automobile excels the old buggy." He declared that, awaiting this development is the "biggest potential market in the world."

Speed Military and Defense Construction

The National Association of Home Builders, Washington, D. C., moved to speed up the construction of military and defense housing. W. P. "Bill" Atkinson, President of the organization, appointed leading builders in 41 states to serve as liaison between the

(Continued on page 8)

MANSFIELD

Dependable DIMENSION *Stock*

Mansfield Dimension Stock is manufactured to meet your most exacting requirements. The Hardwoods and Pine are selected from the 40,000,000′ production of our two band mills. The lumber comes from Mansfield timberlands all on selective cutting perpetual yield basis.

The Mansfield Dimension Plant with its modern machinery, trained manpower and supervision and long experience in the field provides the "know-how" that means complete satisfaction and lower production costs.

We specialize in glued-up panels and furniture dimension, either semi-finished, or moulded, equalized and tenoned. However, our plant is equipped and available to produce interior trim, stair treads and risers or practically any other item to meet your requirements. Send us your specifications. Our prompt quotations and samples will convince you that Mansfield Dimension is your best buy today.

MANSFIELD HARDWOOD LUMBER COMPANY

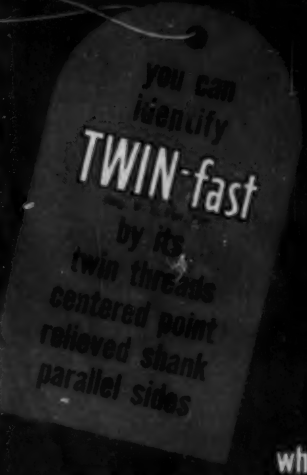
P. O. Box 91 **Shreveport, Louisiana**

Band Mills: Zwolle and Winnfield, La. . . . Dimension Plant: Zwolle, La.

The Double Thread Cuts the Time in Half!

Save assembly time . . . . . get better fastenings with the TWIN-fast Screw's four exclusive advantages

1. Twin thread doubles the pitch . . . drives the screw twice as far for each turn of the driver.
2. Centered point helps make fast, straight start—no wobbling of screw, no displacement of parts.
3. Relieved shank eliminates "wedge action" and splitting—makes stronger fastening.
4. Parallel sides (no taper except at point) gives greater contact—often allows fewer or smaller screws.



save TIME
save DRILLING
save SCREWS
save REJECTS

when assembling wood to wood, plastic to wood or metal to wood

Can be furnished with either Slotted or Phillips recessed head

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Central Screw Company
Chicago, Illinois, and
Keene, New Hampshire

Continental Screw Company
New Bedford, Mass.

National Screw & Mfg. Co.
Cleveland, Ohio, and
Los Angeles, Calif.

Stronghold Pacific Corp.
Downey (Los Angeles), Calif.

Stronghold Screw Products, Inc.
Chicago, Ill.

Southington Hardware Mfg. Co.
Southington, Conn.

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Blake & Johnson is headquarters for patented Twin-Fast® twin-thread wood screws now available with Phillips head as well as slotted round, flat and oval heads—in brass and steel, bright finished—in all standard lengths and diameters and some special sizes; others to order.
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fastenings
TAPPING SCREW
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BLAKE & JOHNSON
SINCE 1849
WATERVILLE 48, CONNECTICUT

TRENDS

(Continued from page 6)

NAHB and military or defense housing projects in their areas.

"We are making every move possible to assure speedy construction of needed defense and military housing throughout the country," said Atkinson. "Our builder trouble-shooters will keep in touch with all facets of this problem in their areas. If any obstacles arise, we have the machinery set up to meet such situations on sight."

Atkinson said that talks with government and military leaders revealed an estimate that military and defense housing needs for 1952 will total between 200,000 and 250,000 units. He said that construction of such housing is well under way in many areas.

FREIGHT CARS

Production

A total of 24,200 freight cars has been programmed for production in the first quarter of 1952, the NPA recently advised. However, because of the acute shortage of materials, allotments of controlled materials will be made to the car builders on a basis of 21,200 cars. Allocations will be made according to the following table:

	Total Authorized	Total for which Material will be Granted
1. Tank cars	2,500	2,000
2. Domestic Freight cars	20,500	18,000
3. Export cars	1,200	1,200
Total	24,200	21,200

The new program does not provide for any increase in allotments of steel, copper and aluminum to the freight car builders. These allocations will still be based upon the original program determination of 21,200 cars, as broken down in the table above.

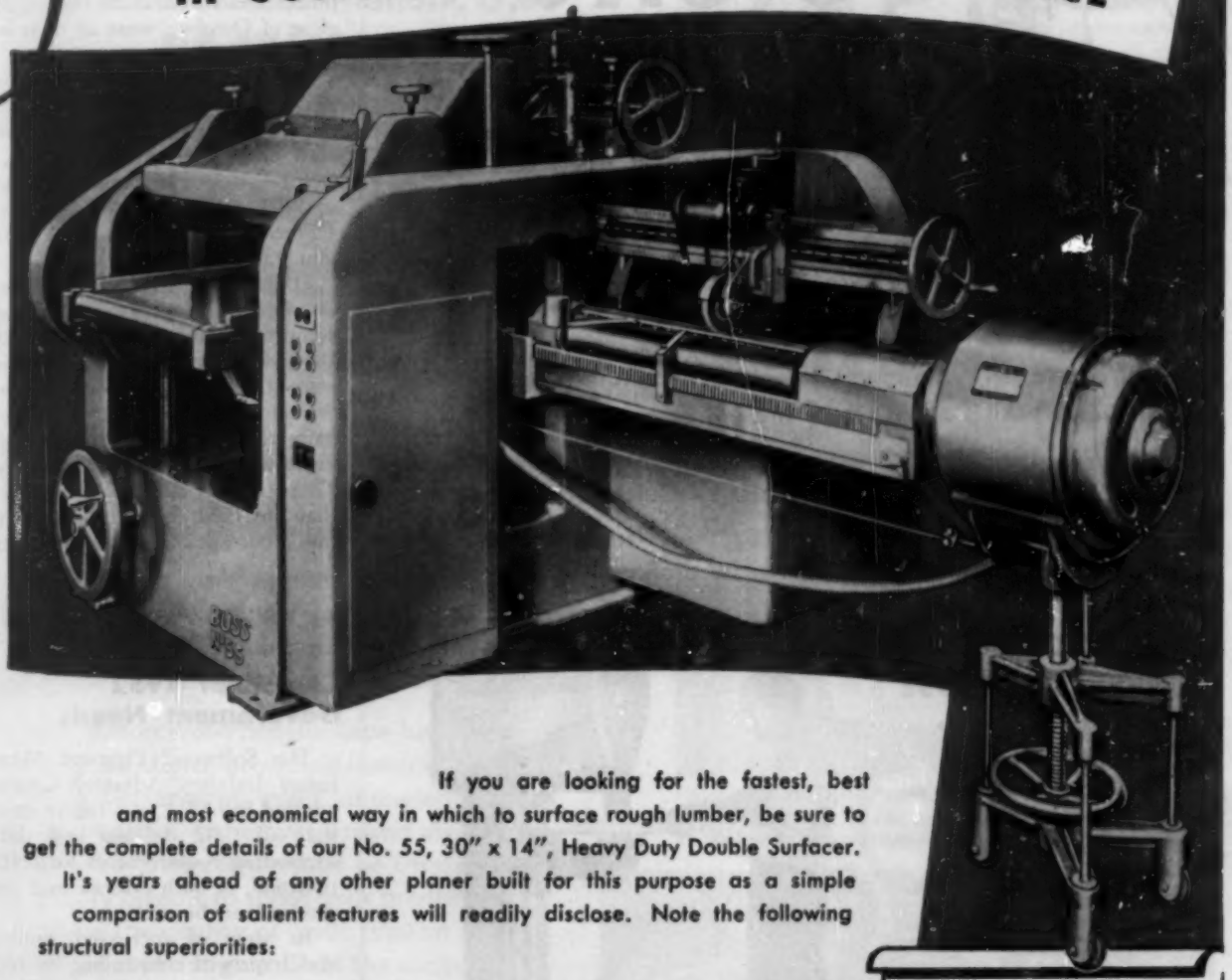
FURNITURE

Orders, Shipments Up

Furniture shipments in October attained a volume almost equal to the record high of the first few months of 1951, according to Seidman & Seidman, certified public accountants. The

(Continued on page 10)

for DOUBLE SURFACING ROUGH LUMBER the BUSS No. 55 is YEARS AHEAD in CONSTRUCTION and PERFORMANCE



If you are looking for the fastest, best and most economical way in which to surface rough lumber, be sure to get the complete details of our No. 55, 30" x 14", Heavy Duty Double Surfacer. It's years ahead of any other planer built for this purpose as a simple comparison of salient features will readily disclose. Note the following structural superiorities:

1. Variable feed — from 30 to 175 ft. per minute. 2. Chromium plated beds and bars — for longer wear. 3. Heavy built-in grinders and jointers. 4. Anti-friction ball and roller bearings throughout. 5. Sectional feed roll and chipbreaker. 6. Large diameter cutterheads with high-speed TUNGSTEN knives for longer wear and smoother finish. 7. Completely motorized with push-button control. 8. Shearing Bar to prevent damage from loose knots. 9. ONE-SHOT lubrication for smooth running and insurance against neglected parts. Write for complete description. Ask for bulletin 55.

FLOORING MILLS and KINDRED PLANTS

No. 55 is also available in 20-inch width with speed stepped up to 275 ft. per minute. This model has proved itself a "bear-cat" for Flooring Mills and similar operations. Let us tell you about it.

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SINCE 1862
MACHINE WORKS

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HOLLAND, MICHIGAN

QUICK?

CAN YOUR FASTEST MAN DRIVE 3 NAILS A SECOND?

"Of course not!" No man can equal Auto-Nailer's speed in driving 3 NAILS A SECOND, straight or bradded, clinched or started. Auto-Nailer drops no nails, bends no nails, works with efficiency on almost any material. Quick, accurate settings for nail length and countersink, plus elimination of waste, make Auto-Nailers your most profitable employees!

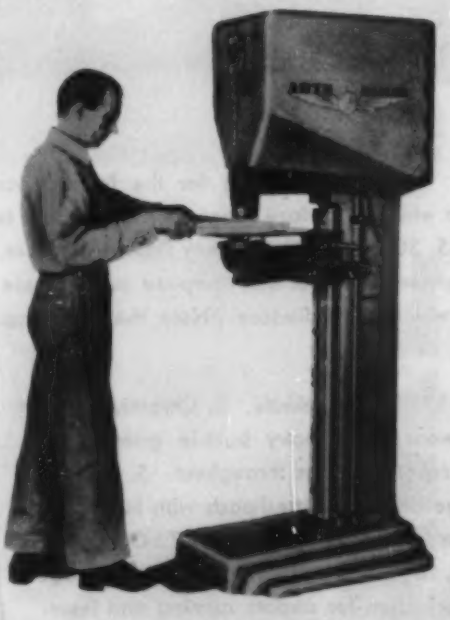
A MODEL FOR EVERY PURPOSE

SPARTAN
for heavy-duty work.

CRUSADER
for lightweight tasks.

LIKE TO SEE SOME SAMPLES?

Send us specimens of your work. We'll be happy to demonstrate Auto-Nailer's virtue and versatility, at no obligation.



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TRADE MARK REGISTERED

THE AUTO-NAILER CO.
267 MARIETTA ST., N. W. • ATLANTA, GEORGIA

TRENDS

(Continued from page 8)

heavy October shipments cut deeply into the order backlog as the volume of new orders, while continuing to show improvement over preceding months, did not keep pace with output. Unfilled furniture orders at the close of October, were at their lowest point of the year.

Orders booked in October by reporting plants were up 2 percent compared with the September bookings and off 6 percent compared with October 1950. For the first ten months of 1951, total orders were down only 1 percent from the totals taken in the same period in 1950.

Shipments increased 13 percent in October over September, but were off 11 percent compared with October 1950. For the ten months, shipments were still ahead of 1950 by 6 percent. Starting in January with a 45 percent gain, the cumulative comparison has dwindled with each successive month. There is still a possibility, however, that the 1951 dollar totals will equal the record-breaking 1950 shipments.

PLYWOOD

Can Meet 1952 Government Needs

The Softwood Plywood Manufacturers Industry Advisory Committee advised the NPA, at a recent meeting, that all 1952 defense and defense-supporting requirements for softwood plywood, of both exterior and interior grades, can be met.

In view of increased production and improved scheduling by military procurement agencies, 1951 output will satisfy the demand the committee agreed. However, this generally optimistic outlook was modified by some expressions of concern over the imbalance in plywood orders. Better grades of exterior plywood are reported to have a heavy demand. One industry spokesman indicated a softening in the demand for interior grades.

NPA officials reported concerted efforts are being made at meetings with Munitions Board and procurement officials to promote the substitution of plywood wherever possible to conserve metals and also to modify military specifications for plywood to make greater use of interior grades of exterior plywood.

(Continued on page 12)

LAMINATED OAK FRAMES GLUED FOR PERMANENCE

BAKELITE Resorcinol-Phenolic Glue BC-17613 Qualifies Under Specification MIL-A-397A

Luders Marine Construction Company uses BAKELITE Resorcinol-Phenolic Waterproof Glue BC-17613 to construct laminated oak ship frames under Navy Specification MIL-0-15154. These frames must resist temperature changes, salt water, fungi, chemicals, working stresses, and aging.

BC-17613 glue is easily applied with brush or spreader thereby providing a quick, practical method of construction with simple equipment. In half an hour a frame can be assembled and ready for curing.

BAKELITE Resorcinol-Phenolic Glue has a wide range of applications, providing maximum durability for exterior plywood, laminated lumber, beams, and trusses—wherever greater strength and resistance to elements must be combined. You, too, may be able to speed your production and improve the quality of your product by using this superior glue. Send the coupon today for your free copy of our eight-page booklet "BAKELITE Resorcinol-Phenolic Resin Glue BC-17613" which provides detailed data on BC-17613 and the techniques for its best application.

Applying BAKELITE Resorcinol-Phenolic Glue BC-17613 to oak planks prior to laminating. Brushes or glue spreaders may be used.

Laminates being bent and clamped to form frame. Heavy dogs, right of frame, set and hold it to proper form.

Covering frame with canvas blanket to retain heat during process of curing. Gluing and bending has taken only half an hour with an experienced crew.

The finished frame with crossbeams attached. Note thicker lamination at bottom of boat frame, thinner sides with overlapping plank ends.

BAKELITE COMPANY, Dept. DG-26
A Division of Union Carbide and Carbon Corporation
30 East 42nd Street, New York 17, N. Y.
Please send Technical Data Booklet on BAKELITE Waterproof Resin Glue BC-17613 at no charge, to

*Name*_____ *Title*_____
*Company*_____
*Street*_____
*City*_____ *Zone* ____ *State*_____

BAKELITE
TRADE-MARK
RESIN ADHESIVES

BAKELITE COMPANY, *A Division of Union Carbide and Carbon Corporation* UCC 30 East 42nd Street, New York 17, N.Y.

(Continued from page 10)

MACHINE TOOLS

Shortage a Top Problem

The machine tool shortage is one of this year's top problems, and despite sharply rising production rates, there is little promise of relief in 1952, a DPA–NPA study reveals.

At present, the industry is actually smaller than it was when the United States entered World War II. At that time, the industry had already expanded and for two years had been producing for those countries at war with Germany. With V-J day, the industry faced serious reconversion problems. About twenty percent of machine tool producing companies stopped production. Five years later as the new mobilization program got under way, machine tool makers recalled vividly the war time "boom and bust" and sidestepped new expansion.

During the first year after Korea production lagged, and among the counts cited were: Price controls, difficulties in procuring materials and components, lack of easy financing, a manpower shortage, and lack of definite information on the future needs of the mobilization program.

To break these bottlenecks, six mobilization agencies were directed to do something about them. Where it has been possible to do so, these agencies have cleared the way for greater production.

UTILIZATION

Redwood Sawtimber Backlog Ample

California's Redwood and Douglas fir regions today have more than 600 sawmills and other wood-using plants, and back of them stands a forest of nearly 3,000,000 acres with an estimated sawtimber backlog of 48 billion board feet, according to Arnold F. Wallen, consulting forester. He estimated the California Redwood Region's commercial forest area at 1,672,000 acres with a total available virgin sawtimber volume of 36,092,000,000 board feet. He placed the California Douglas fir region at 1,162,000 acres with a virgin sawtimber volume of 12,491,000,000 feet.

Wallen said a steady flow of high grade redwood sawtimber is necessary to fill the demands for the many special uses to which it is put, and that with tree farming and closer utilization of tree and log, he believes the challenge is being met.

IF IT'S TURNED, A
NASH CAN SAND IT!

Nash Sanders are the answer to the need for increased production, quality production, at lower cost. Nash Sanders are "standard of the world," backed by many years' outstanding production records, and have always maintained leadership by constant improvement.

FASTER, BETTER SANDING AT LOWER COST

Write FOR DETAILED INFORMATION...
SEND SAMPLE OF STOCK FOR DEMONSTRATION

Beaded Turning Sanders, Spool and Bobbin Sanders, Automatic Round Stock Sanders, 4 and 12-Spindle Universal Power Feed Boring Machines and other special machines.

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2359 N. 30th Street, Milwaukee 10, Wisconsin

WOODICTIONARY

SODA PROCESS

An alkaline pulping process involving the use of an aqueous solution of sodium hydroxide, used in the production of book, magazine, and lithograph pulps, principally from hardwoods.

GREENLEE NO. 110 PLANERS IN OPERATION AT WHITE FURNITURE COMPANY, MEBANE, N. C.

SMOOTH IN OPERATION FOR SUPER-SMOOTH RESULTS

. . . Greenlee No. 110 Six-Roll Single Planer

The minute you run a piece of stock through a GREENLEE No. 110, you'll see what we mean when we talk about "smoothness". Finely finished panels can be planed so smoothly that they require little or no sanding.

Yet the No. 110 is a production machine for all types of planing. Feed speeds for rough cuts as well as for finely finished work are available. The entire operation is performed with such ease and speed . . . the finished work comes out with such fine finish and accuracy . . . you'll be able to picture immediately the extra production the GREENLEE No. 110 SIX-Roll Single Planer can bring to your plant.

Friction, wear, and power consumption are reduced to an absolute minimum by means of ball and roller bearings, and oil-tight housings for the gears, which keep out dust and dirt. Bearings are lubricated by high-pressure grease gun, and the enclosed gears run in oil and lubricate themselves.

In all, the GREENLEE No. 110 Planer brings to all kinds of work . . . whether box boards or finely finished panels . . . unusual production speed, ease of operation, and accurate, smooth results. Write today for details. Greenlee Bros. & Co., 1921 Twentieth Ave., Rockford, Illinois.

MACHINERY & TOOLS

GREENLEE

GREENLEE WOODWORKING MACHINERY: MORTISERS • BORERS • SAWS • TENONERS • PLANERS • SHAPERS • MORTISING and BORING TOOLS

That's why 9 out of 10 dry kiln operators prefer Kiln Control by Foxboro!

Even rough work like log-driving requires men with experience in doing one thing *well!* And for the precision task of controlling your dry kiln, it's *doubly* important to obtain equipment built by experienced specialists in instrument design.

Foxboro *originated* — more than thirty years ago — the type of Recording Humidity Controller used on dry kilns, and has been the leading supplier ever since. More than 3000 installations are eliminating degrade loss, giving closer control, quicker, safer drying, and year-'round service.

Put this experience to work for you. Foxboro Dry Kiln Controllers include the following features: Multi-Zone (3 controllers in 1); Dual Dry Bulb (for reversible fan operation); Duplex Wet Bulb (for steam-spray and damper operation.) **The Foxboro Company, 2381 Neponset Ave., Foxboro, Mass., U.S.A.**

FOXBORO
REG. U. S. PAT. OFF.

DRY KILN CONTROL

Wood Puzzlers

When replying please send answers to WOOD & WOOD PRODUCTS and refer to the number after the title. We will be glad to forward it for you. Send us your problems, too. Perhaps other readers have the answers.

Woods for Carving—No. 22

Can you give me the name and address of someone who furnishes the different woods for carving? There is an organization in the States who can furnish soft woods and also ebony and other grades of wood for carving. I wonder if you happen to know who it is. (N. J.)

Kiln-Dried Birch, Maple or Elm—No. 23

We are interested in obtaining several sources of supply on kiln-dried hardwood (birch, maple or elm) measuring 1½ in. x 1½ in. x 16½ in. long or in very long lengths as they are equipped to cut the lengths into 16½" long pieces. We would appreciate the names of several Michigan producers who could supply quantities of 10,000 to 20,000 lengths. (Mich.)

(Continued on page 58)

"SPECIFICATION" CUSTOM KILN DRYING

the usual and the unusual in custom kiln drying for—
Aircraft, Technical and other exacting or Regular uses . . .

- **The finest in Specification drying of Western woods, Hard and Soft Domestic and Imported Woods**

Resawing, Surfacing, Pattern Cuts, Smooth-end trim. Save on dry freight weight vs. green. Pattern items cut waste, freight. Transit rates on R. R. shipments. Delivered, ready to use—Saves manpower, time.

5 automatic c.c. kilns operated by trained, experienced kiln engineers, drying up to 50' lengths, up to 6" thick.

WRITE FOR INFORMATION ON SPECIFICATION KILN DRYING · NO OBLIGATION

LUMBER MANUFACTURERS INC. Cable Address Lumac Long Distance—SU 1101 for Gordon Wilkinson Pres.
2536 S. E. STEELE ST. **PORTLAND 2, OREGON**

PATENT DIGEST

by Royden C. Rinker

Hockey Stick

F. J. Zupanick (to Lovell Manufacturing Company) U. S. 2,569,395, Sept. 25. Hockey stick comprising a wooden handle and a laminated wooden blade.

Clamp

H. M. Bouton (To Norwalk Clamp Corp.) U. S. 2,569,450, Oct. 2. Clamp for securing together a number of planks in side by side relation comprising a pair of rigid bars extending across the planks and adjustably hinged.

Floor Covering

A. Elmendorf. U. S. 2,569,709, Oct. 2. Floor tile prepared by cutting through at least one face of a thin wood board to form grooves and breaking whereby jagged intermeshing meeting edges are formed.

Sawmill Feed

W. E. Arnold and G. R. Caton. U. S. 2,569,794, Oct. 2. Feed works for a sawmill having a reciprocal carriage comprising forward and reverse drums rotatable in the same direction, a power shaft undirectionally rotating at a constant speed, means for connecting the drums to the power shaft and a cable wound about the drums to operate.

Bevelled Siding

T. H. Ryall. U. S. 2,569,831, Oct. 2. Bevelled siding prepared by forming a core of lengths of rectangular material, applying a veneer to opposite faces of the core and dividing the core diagonally edgewise between the veneers and applying a second veneer to the faces formed by dividing the core.

Sawmill Carriage

G. E. Zweifel and D. H. Bookhultz (to G. E. Zweifel) U. S. 2,569,842, Oct. 2. A sawmill carriage assembly which comprises a sawmill carriage adapted to reciprocate with respect to a saw.

Log Cutting

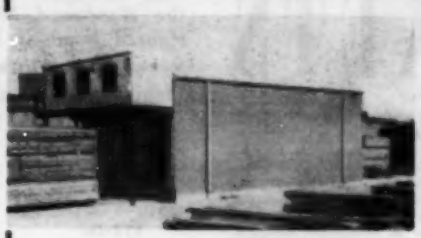
E. C. Aringer and T. T. Murphy. U. S. 2,569,878, Oct. 2. In a gang saw machine for cutting logs into sections, a support, a saw shaft mounted upon the sup-

(Continued on page 59)

Tannewitz
HIGH SPEED
BAND SAWS

Saws faster, smoother and easier than conventional band saws. Regularly increase production from 50% to 100% with consequent reduction of costs. Built by sawing machinery specialists. Write for circular.

THE TANNEWITZ WORKS
GRAND RAPIDS 4, MICHIGAN



Wabash Screen Door Co.,
Minneapolis, Minn.

Performance-Tested

In Over 6,000 Installations

More than 6,000 Moore Cross-Circulation Kilns installed: What better evidence that this automatically controlled drying system can meet your drying needs!

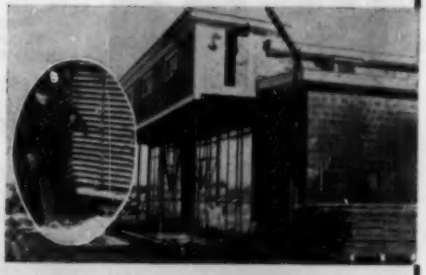
Installing new kilns or converting old-type kilns—drying hardwoods, softwoods, veneer, panels or cooperage—holding conventional loads or unit packages: Moore Cross-Circulation Kilns are successfully meeting different operating conditions.

The many repeat orders are proof of their success in every position of the country.

Write for Bulletin 5103, showing partial list of plants operating Moore Cross-Circulation Kilns. Send today for your copy.

Get the Facts, and you'll get

A Moore Cross-Circulation Kiln



Passamaquoddy Lumber Co.
Calais, Maine

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MARKETS

These prices are estimates made available by Mr. George Land, publisher of the *Hardwood Market Report*, and reflect prices as indicated in his copyrighted issue of December 8, 1951. Mr. Land's complete report is available weekly; those who want the entire list should contact him c/o Box 5716, Memphis 4, Tenn.

SOUTHERN HARDWOODS

F.O.B. mills—Texas & Louisiana area—estimate of present FOB Texas & Louisiana mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Southern Hardwoods in carload quantities, random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'. on straight cars of upper bracket grades premiums are frequently being paid.

ASH—FIRM TEXTURE

	FAS	No. 1C	No. 2C
4/4-in.	155	108	62
6/4-in.	168	120	65
8/4-in.	180	140	70

BASSWOOD

4/4-in.	165	130	80
6/4-in.	170	135	87
8/4-in.	180	145	90

BEECH

4/4-in.	125	100	62
6/4-in.	150	112	67
8/4-in.	167	127	72

CHERRY
Same as Appalachian

RED GUM—PLAIN

4/4-in.	200	150	70
6/4-in.	230	170	75

RED GUM—QUARTERED

4/4-in.	225	175	75
6/4-in.	250	200	90
8/4-in.	260	210	95

SAP GUM—PLAIN

	FAS	No. 1C	No. 2C
4/4-in.	115	105	47
6/4-in.	155	135	
8/4-in.	160	140	

HACKBERRY

4/4-in.	110	90	65
6/4-in.	130	108	75
8/4-in.	135	110	75

HICKORY
Temporary suspended

MAGNOLIA

4/4-in.	170	135	75
6/4-in.	185	143	84
8/4-in.	205	150	87

SOFT MAPLE—WHAD

4/4-in.	130	110	67
6/4-in.	145	120	77
8/4-in.	155	125	80

SOFT MAPLE—WHND

4/4-in.	115	90	60
6/4-in.	130	105	75
8/4-in.	135	110	80

RED OAK—PLAIN

4/4-in.	130	105	63
6/4-in.	190	135	
8/4-in.	200	140	

WHITE OAK—PLAIN

4/4-in.	185	115	63
6/4-in.	195	140	
8/4-in.	205	145	

PECAN

	FAS	No. 1C	No. 2C
4/4-in.	114	94	48
6/4-in.	130	110	65
8/4-in.	155	130	70

POPLAR—PLAIN

			No. 2A
4/4-in.	170	120	75
6/4-in.	185	140	87
8/4-in.	205	150	90

SYCAMORE—PLAIN

			No. 2C
4/4-in.	117	97	60
6/4-in.	125	105	60

TUPELO—PLAIN
TUF TEXTURE—DEEP SWAMP

4/4-in.	115	100	47
6/4-in.	155	135	
8/4-in.	160	140	

WILLOW

4/4-in.	142	120	60
6/4-in.	142	123	67
8/4-in.	150	135	70

APPALACHIAN HARDWOODS

F.O.B. mills—Johnson City, Tennessee area—estimate of present FOB Appalachian mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade of band-sawn Appalachian hardwood in carload quantity, random widths & lengths, rough, air dried, & graded in accordance with

Break that Strangle-Hold on your Wood Gluing Production!

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THERMATRON supplies the complete installation, both generators and necessary jigs, under one contract and one responsibility. Often the immediate savings in production effected by THERMATRON equipment more than offset the initial installation cost.

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NHLA rules of inspection. Prices in dollars per M'. on straight cars of upper bracket grades, premiums are frequently being paid. Basis selected for the purpose of indicating transportation costs to principal consuming markets from Johnson City, Tennessee area.

TOUGH ASH	FAS	FIF	No. 1C	No. 2C
4/4-in.	160	150	110	67
6/4-in.	180	170	122	72
8/4-in.	190	180	147	85

BASSWOOD				No. 2A
4/4-in.	180	170	130	84
6/4-in.	190	180	137	94
8/4-in.	195	185	147	96

BEECH				No.2C
4/4-in.	145	135	110	75
6/4-in.	160	150	120	75
8/4-in.	170	160	130	80

BIRCH				
4/4-in.	205	195	140	80
6/4-in.	220	210	150	85
8/4-in.	230	220	155	90

BUCKEYE				
4/4-in.	135	125	100	65
6/4-in.	160	150	115	73
8/4-in.	165	155	120	78

CHERRY				
4/4-in.	200	190	135	80
6/4-in.	235	225	160	85
8/4-in.	250	240	170	90

CHESTNUT				
4/4-in.	165	...	115	62
6/4-in.	170	...	120	64
8/4-in.	175	...	125	65

HICKORY				
4/4-in.	125	115	78	52
6/4-in.	145	135	86	58
8/4-in.	165	155	90	60

HARD MAPLE				
4/4-in.	190	180	125	80
6/4-in.	200	190	135	84
8/4-in.	205	195	145	90

SOFT MAPLE				
4/4-in.	160	150	115	67
6/4-in.	170	160	125	69
8/4-in.	175	165	130	72

RED OAK—PLAIN	FAS	FIF	No. 1C	No. 2C
4/4-in.	185	175	120	
6/4-in.	200	190	135	
8/4-in.	215	205	145	

WHITE OAK—PLAIN				
4/4-in.	200	190	125	
6/4-in.	220	210	145	
8/4-in.	225	215	155	

WHITE OAK—WHND				
4/4-in.	115	105	85	..
6/4-in.	140	130	110	..
8/4-in.	150	140	115	..

YELLOW POPLAR—PLAIN				No. 2A
4/4-in.	210	200	140	85
6/4-in.	220	210	150	93
8/4-in.	230	220	160	..

POPLAR SQUARES	FAS	No. 1C & SD
4x4-in.	245	175
6x6-in.	280	190
8x8-in.	340	240

WALNUT—STEAM TREATED	FAS 6' & up	FIF 6' & up	No. 1C	No. 2C
4/4-in.	350	305	185	80
6/4-in.	370	32F	210	95
8/4-in.	385	340	235	100

Walnut list reflects average fob mill, all areas. Basing point not generally observed.

NORTHERN HARDWOODS

Estimate of present FOB Wausau, Wisconsin mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Northern hardwoods in carlond quantities random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'.* On straight cars of upper bracket grades, premiums are frequently being paid.

BROWN ASH	FAS	No. 1C	No. 2C
4/4-in.	145	105	73
6/4-in.	155	120	83
8/4-in.	160	130	88

BASSWOOD			
4/4-in.	180	125	78
6/4-in.	190	135	88
8/4-in.	195	145	96

BEECH			
4/4-in.	145	100	68
6/4-in.	160	115	78
8/4-in.	165	120	80

BIRCH			
4/4-in.	265	145	80
6/4-in.	275	160	90
8/4-in.	280	175	100

ROCK ELM			
4/4-in.	135	115	65
6/4-in.	145	125	75
8/4-in.	150	135	80

SOFT ELM			
4/4-in.	135	105	71
6/4-in.	135	115	81
8/4-in.	140	120	86

HARD MAPLE			
4/4-in.	190	130	78
6/4-in.	200	140	81
8/4-in.	205	145	82

SOFT MAPLE			
4/4-in.	155	130	72
6/4-in.	170	130	82
8/4-in.	135	140	90

RED OAK			
4/4-in.	175	125	77
6/4-in.	185	145	82
8/4-in.	195	155	85

* Air dried Northern Hardwoods are no longer available and sales presently being made cover green stock or stock only partially seasoned. Orders are being placed for stock to be cut and shipped green when accumulated.

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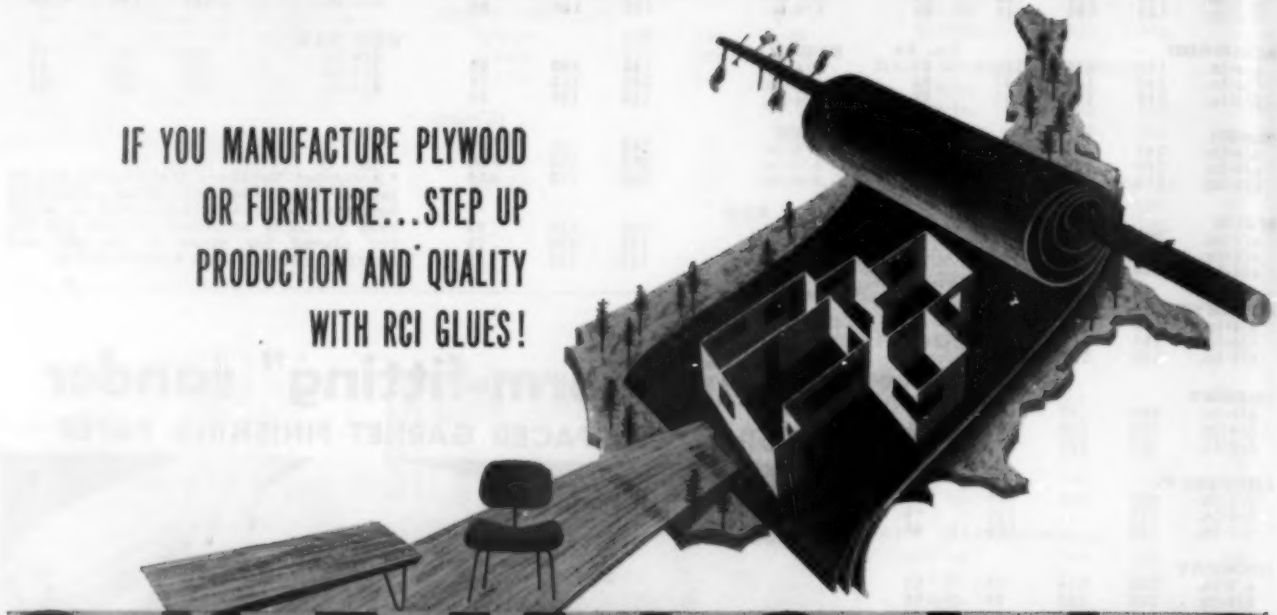

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WILLLIAM B. GREELEY

LAWRENCE H. WHITING

OWEN R. CHEATHAM

Wood Salutes

With this issue, we are saluting three more top rank executives, each of whom is contributing his expert knowledge and experience in an important department of the forest products industries.

William B. Greeley

Colonel William B.Greeley has been intimately associated with the forest products industries of United States since his graduation from the Yale Forestry School in 1904. His current activities include serving as vice-president and trustee of the West Coast Lumbermen's Association.

Greeley is also currently an Advisory Director of the Conservation Committee of the Pacific Northwest Forest Industries, and Chairman of the Board, American Forest Products Industries, Inc.

Author of a recent book, "Forest and Men", 1950 (Doubleday and Company) which tells the story of American forestry from the viewpoint of private industry, Greeley's main activities now include nation-wide promotion of Tree Farms and of tree-growing and educational activities of A.F.P.I. He also consults with private companies on forestry programs.

William Greeley was born at Oswego, New York, on September 6, 1879. He went to California, with his family, in a sailing ship around Cape Horn, in 1890. After concluding his forestry training at Yale, he entered the U. S. Forest Service, where he was destined to become a figure of national importance.

Between 1904 and 1917, Greeley was successively Forest Supervisor, Regional Forester and then Assistant

(Continued on page 82)

Lawrence H. Whiting

Leadership is a habit of long standing, with Lawrence Harley Whiting. All-American center on the University of Chicago football team, and captain, as well, during the days when the Maroons were leaders in the Big 10, he became the youngest Colonel in the AEF during World War I.

Becoming a banker—President of the National Boulevard Bank, Chicago —thereafter, he also headed Whiting and Co., securities house, and the Indiana Limestone Co., which provided the material for most of official Washington, during his regime.

In 1922, he visioned a national center for home furnishings on the then-dreary wasteland dredged out of Lake Michigan, and enlisted support from such leaders as P. E. Kroehler and Z. G. Simmons. The American Furniture Mart, opening in 1924 became world leader in home furnishings immediately, and within three years an addition was necessary. The furniture lines were augmented by home appliances and radio during the 1930's, and television's leaders now display in "the world's largest building devoted to a single industry"—housing everything for the American home.

During World War II, Mr. Whiting was confidential advisor to the Secretary of War, heading a commission investigating pay scales for service personnel, including evaluation of extra compensation for dangerous duty. At the conclusion of this assignment, he received a citation and a General's star from the late James Forrestal, then Secretary of Defense. He is still in the inner circle of defense leaders, and last summer undertook a 25,000 mile inspection trip of European centers.

He is National President of the American Legion Founders, and First Vice President of Phi Kappa Psi, his college fraternity.

Owen R. Cheatham

"If top management is to succeed," says Owen R. Cheatham, "you must realize that it is not what you do yourself—but what is done by those around you."

Owen Cheatham should know where-of he speaks. In 24 short years, the company of which he is founder and president has become the nation's largest producer of Douglas fir plywood. It takes in 14 mills, 15 warehouses and four division offices around the country.

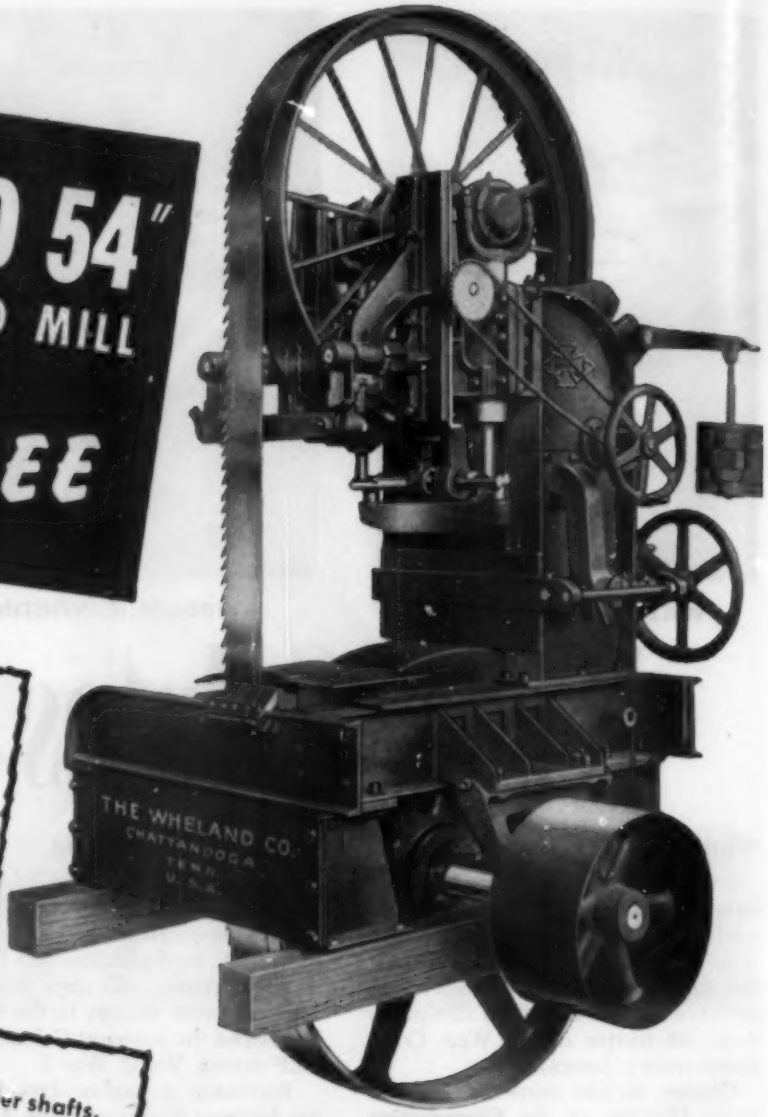
From the day in 1927 when Cheatham first organized his own company —the Georgia Hardwood Lumber company—to engage in the sale of Southern hardwood lumber, sales have been the key to his success.

Sales always come first. Cheatham first sold the lumber and then bought the logs to fill the order.

During the depression the emphasis

(Continued on page 82)

WHELAND 54" HEAVY DUTY BAND MILL gives you all THREE



1

SPEED. The fastest sawing 54" band mill ever built. Wheels accurately machined and balanced to eliminate vibration. Both wheels fitted with Timken Tapered Roller Bearings. Drive pulley belts from any direction.

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ACCURACY. Large diameter shafts, short bearing centers, double supported top saw guide. Base, pedestal and housing built of welded structural steel shapes. Wheels taper fitted on to shaft.

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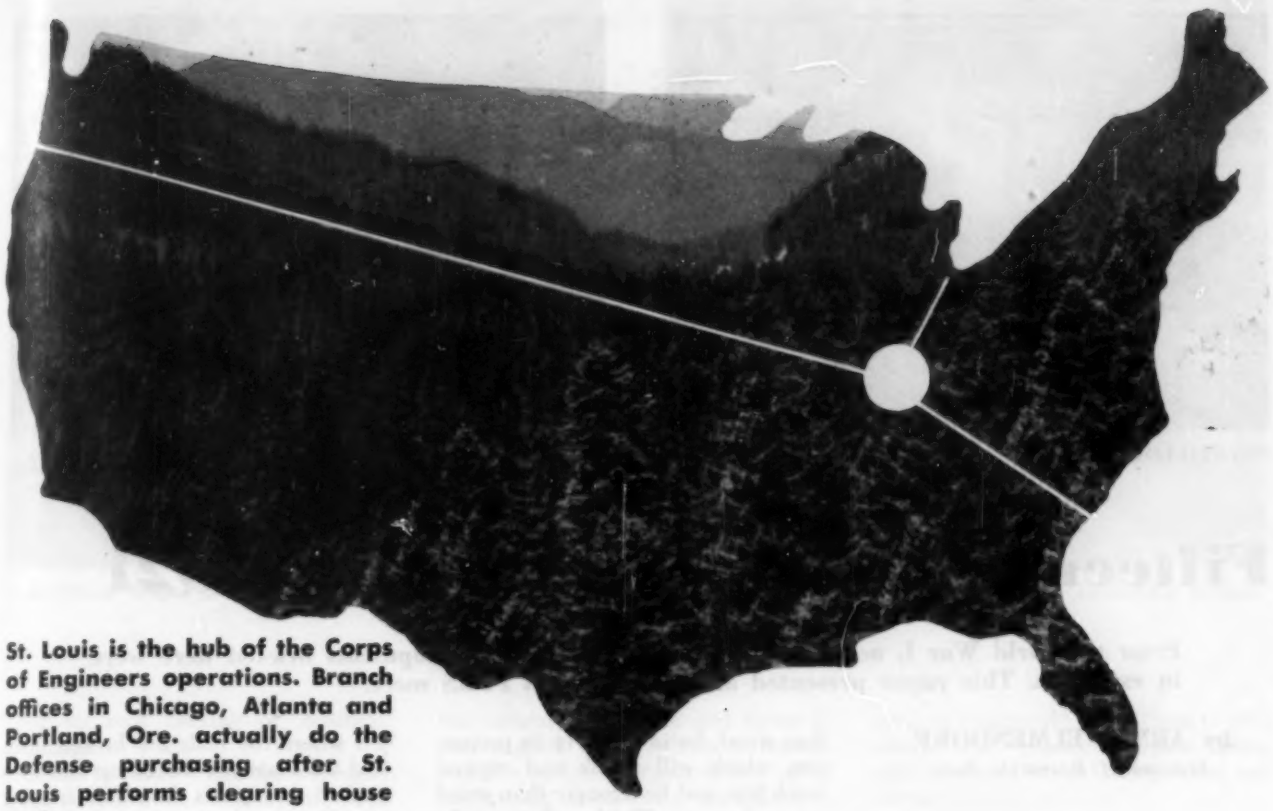
FOR OVER 80 YEARS—THE FOREMOST NAME IN SAWMILL EQUIPMENT



St. Louis is the hub of the Corps of Engineers operations. Branch offices in Chicago, Atlanta and Portland, Ore. actually do the Defense purchasing after St. Louis performs clearing house duties.

How the Engineers Fit into Lumber Buying

The Corps of Engineers has the single service procurement responsibility for lumber and allied products for the Department of Defense, Atomic Energy Commission, and Military Defense Assistance Program. The headquarters for this service has been placed in the Office of the District Engineer, St. Louis District, St. Louis, Missouri, under the direction of Colonel Fred E. Ressegieu, District Engineer.

Colonel Ressegieu said that some 500 or more military installations are instigators of requisitions for lumber and its allied products. With this work load there are naturally many lumber procurement problems. He stated that in the centralization of lumber procurement it is planned to continue the policy of purchasing lumber and lumber products along standard industry practices. He is also determined to develop his office so that it will be of utmost advantage and service to the various military installations. An element of prime consideration in the lumber procurement operation is to obtain co-operation of the various branches and segments of the lumber industry.

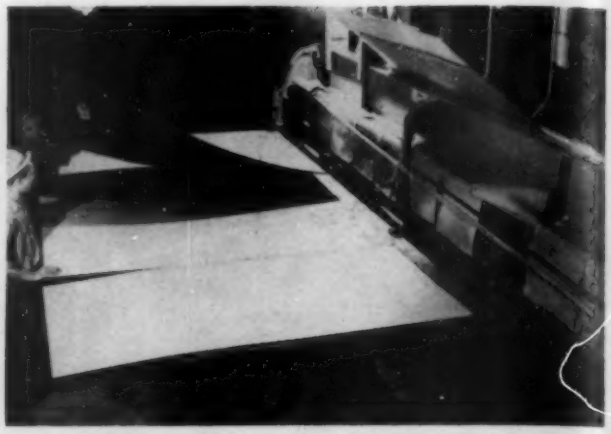
The staff of personnel assigned to lumber procurement within the Corps of Engineers is augmented by a special advisory group, each individual selected because of his particular knowledge of a certain phase of the overall lumber producing industry. The group includes Mr. John B. Veach as advisor on hardwood lumber items, Mr. Travis Fleischel on southern and eastern softwoods, Mr. Frost Snyder on Douglas fir plywood, Mr. A. S. Glassow on western pines, and Mr. Corydon Wagner as advisor for the Douglas fir industry.

The ultimate objective is to buy the most economical grades of lumber for the specific end use required. In accomplishing the objective it is necessary to consider alternate species of lumber and to recognize and study the normal channels of distribution, all of which contribute to the interest of the Government in effecting the greatest economies.

It is pointed out that the St. Louis Office of the Corps of Engineers does not purchase lumber. It is the clearing house for requisitions from the various using services. Upon receipt of a requisition, it is checked for accuracy and reviewed for proper allocation of species and grade commensurate with the end use. After processing for purchase readiness, it is forwarded to one of three actual purchasing offices, located at Portland, Oregon; Chicago, Illinois; and Atlanta, Georgia. The location to which the requisition is sent for purchase depends upon the proximity of the purchasing office to the source of the desired species.

Colonel Ressegieu said that to facilitate the procurement of forest products the aid of the United States Forest Products Laboratory, Forest Service, United States Department of Agriculture, has been enlisted in the preparation of a manual entitled "Manual On Preparation of Requisitions for Lumber and Allied Products". The manual is in the preliminary draft stage and subject to revision and final approval by the Armed Services and industry. It is anticipated that this manual will make possible better coordination of purchasing and utilization practices, thereby, leading to more efficient use of available lumber supplies, conservation of forests, labor, and transportation, as well as effecting economy in the over-all job.

PRESTO-LOGS are a wood waste converted into home fuel.



INSULATING BOARD manufacturing at a Washington state plant.

Fifteen Wood Wonders Since 1921

Prior to World War I, none of the 15 wood products developments briefed here were in existance. This paper presented at the North East FPRS meet.

by ARMIN ELMENDORF
Elmendorf Research, Inc.

A survey of the forest products that are manufactured in the United States today reveals a number of amazing developments. None of the products herein analyzed were in existence prior to World War I.

I am, first stating the problem as if it had not been solved, and then I shall briefly outline the present status of the industry.

1. Insulation Board

Problem in 1920: To produce a low density synthetic board that is much wider than ordinary lumber, out of logs that are not suitable for conversion into lumber, which when nailed to studding in house construction will provide adequate strength to withstand normal service hazards, and which will resist the passage of heat to a greater degree than lumber.

The board must be isotropic in its properties, of uniform density and lower in cost than lumber.

Status in 1951: Numerous insulation board plants have been erected and are operating to capacity. Several of these are producing more than one million square feet of board per day.

2. Hardboard

Problem in 1920: To produce a high density synthetic board that is much wider than ordinary lumber, out of timber that is not suitable for conversion into lumber, which will be harder than wood, be isotropic in its properties; which will shrink and expand much less, and be stronger than wood across the grain. The board must take all high grade finishes applied to wood surfaces and lend itself to gluing so that veneers and other surfacing materials may be bonded to it. It must be readily sawed and must receive nails driven near the edges without splitting so that it can be used for the construction of furniture and legions of other uses where wide panels are desired.

Status in 1951: There are now twelve manufacturers of hardboard in the United States and Canada.

3. Wood Fiber Insulating Blankets

Problem in 1920: To produce a soft thick blanket of fine wood fibers that may be placed between studding and ceiling rafters to keep out winter cold and summer heat. It must be fire-resistant.

Status in 1951: The product is now being made on a substantial scale for house insulation. The fluffy fibers are referred to as wood wool. They are constrained between paper faces and the resultant blanket is nailed into position.

4. Wood Fiber Insulating Fills

Problem in 1920: To produce a type of fine wood fiber that may be shipped in bags to buildings under construction, there to be fluffed up and packed between framing members.

Status in 1951: Fine wood fibers are now being bailed and shipped to the job where the bails are broken open and the fibers are fluffed up and then packed in spaces between framing members to obtain greater insulation than is obtainable with blanket insulation.

5. Weatherproof Adhesives

Problem in 1920: To produce an adhesive suitable for bonding veneers so that plywood may be exposed to the weather indefinitely without glue disintegration.

An adhesive which will set and cure at ordinary room temperatures is also desired.

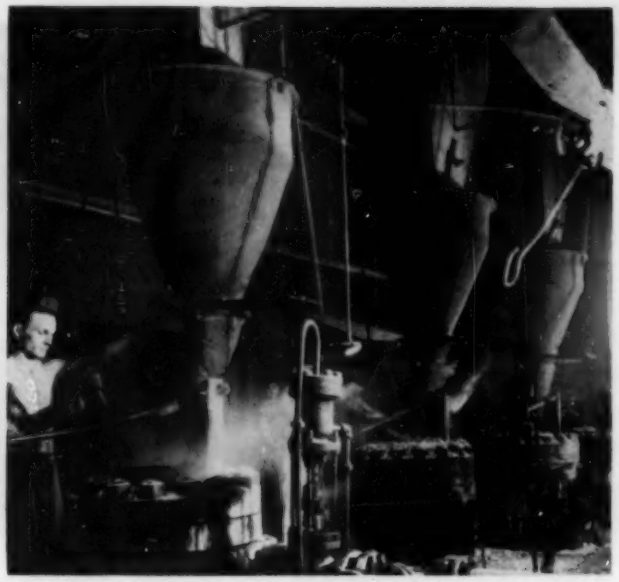
Status in 1951: The phenolic resin type of adhesive development has resulted in the manufacture of about three million square feet per day of exterior-grade plywood in the Douglas fir plywood industry of the Pacific Northwest. Present day phenolic resin adhesives are insoluble and decay and moisture resistant.

The resorcinol adhesives were completely unknown a few years ago. They cure into the insoluble state after a few days at ordinary room temperatures.

6. Fire-Resistant Fiber Boards

Problems in 1920: To convert cordwood which is not suitable for lumber manufacture into excelsior-like fibers, and then to combine these with inorganic binders into a porous board comparable in weight with solid wood. The resultant slabs must not support combustion, and they must have some insulating value so that they can be

SCRAPS no longer go into waste, but into many products.



MASONITE hardboards go through an exploding process.

used for roof decking of industrial buildings.

Status in 1951: While there are only three or four manufacturers of porous fire-resistant excelsior boards in the United States today, the manufacture of such boards has been developed into a substantial industry on the European continent. One manufacturer in Germany produces over one-half million square feet of such slabs per day. When left unpainted in the ceilings and walls they are effective absorbers of sound waves so that they are being used extensively in that form in restaurants, bowling alleys and other places where sound quieting is important. They will not support combustion.

7. Wood Defibration

Problem in 1920: To develop a process for reducing cordwood, slab wood and solid sawmill waste into fibers by separating the same into the individual basic botanic fibers of which wood is composed, and yet retaining the length of the fibers.

Status in 1951: The Asplund process for reducing wood chips into fibers in the presence of high pressure steam is no doubt familiar to most wood technologists. This process of wood defibration is now being used throughout the United States in the manufacture of roofing felts and to some extent also in the manufacture of hardboard.

8. Flexible Wood Flooring

Problem in 1920: To produce a patterned wood flooring which retains the natural grain, color and figure of the original wood, which is flexible and can be laid on concrete and other subflooring by means of an adhesive. The wood must be so treated, or the wood components must be so oriented that the flooring requires no nailing, and it must remain firmly bonded in high humidity weather. It must be made available finished in the factory by mechanical means.

Status in 1951: Two types of flexible hardwood floorings are now being manufactured in Louisville, Kentucky. One of these is furnished in squares 9 by 9 in., and in the form of planks 9 in. by 8 ft. and 3/16 in. thick. This flexible flooring is laid with an adhesive directly on concrete like linoleum. It is prefinished in the factory.

The second type of flexible wood flooring is 5/16 in. thick. It is furnished in the form of squares, and in Haddon Hall pattern; and is also laid with an adhesive directly to concrete.

9. Flexible Wood Wall Covering

Problem in 1920: To produce a wall covering of thin sheets of figured veneer that retain the natural grain, figure and color of wood, which is so flexible that it may be bent to a right angle without fracture, and which can be bonded to plaster walls like wall paper. It must remain firmly bonded in high humidity weather and must not buckle or blister.

Status in 1951: Flexible wood wall covering resulted from research work aimed at making veneers pliable so that they can be bonded to plaster walls without introducing shrinkage stresses that would cause them to peel away. This product is now being manufactured in the United States and abroad.

10. Hot Gluing With Cold Plates

Problem in 1920: To develop a rapid method of gluing thick stacks of veneer, or boards edge to edge, under pressure between cold plates with adhesives that require heat for curing, so that only the adhesive is heated and the temperature of the wood is substantially unchanged.

Status of 1951: The bonding together of wood members by means of heat generated electrostatically is a relatively recent development. By heating the glue line electrostatically, an effective bond can be obtained in less time than thru the conventional conduction.

11. Stressed Skin Construction

Problem in 1920: To produce wall, floor and roof, and door panels of houses and other structures by bonding plywood panels to both sides of a light weight framing to best utilize the high tensile and compressive strength of plywood. The aim is to make a structure which when subjected to stresses in service will distribute these stresses so that the plywood faces or skins will be subjected primarily to either tension or compression throughout its thickness, and the function of the framing will be to separate the

(Continued on page 60)

Comparative Operating Costs of Carbide Tipped Saws

Part 2

This paper, presented at the November A.S.M.E. meeting in Atlantic City, gives some hard facts on carbide operation which merit real consideration.

by C. E. DRAKE
Drake Corporation

For purposes of this discussion, it is possible to divide the saws into two general categories—the continuous gullet type and the chip-thickness-control type, commonly referred to as the Safety Saw.

"Controlled Cut" Saws

The first patent in which the inventor claimed that the concentric rim of the saw plate with the tooth formed to limit or control the depth of cut, or chip thickness, was issued to a Mr. Hazard Knowles of Washington, D. C. under Number 7603 on August 27, 1850. One of the later patents granted on a safety type saw was issued to a Mr. Roy Forsyth of Spokane, Washington on June 23, 1931, expiring June 23, 1948, number 1811079, disclosing the idea of using the peripheral edge of the saw blade to control the thickness of the chip that a tooth can cut.

For a number of years this idea languished in the limbo of forgotten things but has, in recent years, enjoyed a remarkable revival and deserves some comment. This saw has comparatively few teeth, the wide spacing between the teeth being occupied by feed control surface. Let us clarify the purpose of this type of saw. In the first place, it is a limited feed type of saw. If it is not ground to operate as such, then there is no point whatever in using it. This type saw is not efficient on any modern sawing machine having precision positive mechanical power feed. The reason is that all such machines exercise positive unyielding control over the factor of chip loading. Any "Chip-thickness-control" type saw ground to accept the maximum feed rate that may prevail on such a machine has no need for, nor does it exercise its own chip control feature. Since such a saw has no use for its chip-thickness-control feature when operated on such a machine, the distances between the teeth should be occupied by more teeth to absorb wear and insure longer runs between sharpenings.

A carpenter's or cabinet maker's hand plane is an excellent example of a chip controlled cutting tool. The cutting edge of the blade can be adjusted to project any distance below the surface of the plane. The distance the cutting edge projects determines the thickness of the chip the plane will cut. If one sets the blade to cut a chip 1/64" thick, it does not matter how hard one presses down as the plane is moved forward, because it cannot cut a chip thicker than 1/64".

If we prepare a circular steel disc, put just one tooth in it, grind that tooth so that its cutting edge is 1/64" above the concentric edge of the disc, then mount this one tooth saw on a saw table and feed a board into it, it would only cut a chip 1/64" thick each time the saw made one turn. In 64 revolutions, it would cut 1" into the board. With the chip thickness thus controlled, the maximum rate of feed for such a saw is determined by the following factors: 1) Height of the cutting edge of the tooth above the concentric edge of the saw. 2) Times the number of teeth in the saw. 3) Times the r.p.m.

Due to the fact that this type saw depends on substantial spacing between the teeth for the chip-thickness-control feature, the total number of teeth that can be put in such a saw is appreciably less than can be provided in the same diameter in a saw without the chip-thickness-control feature. Assuming proper chip loading and efficient operating condition, the amount of work a saw will do per sharpening is controlled by the number of teeth. A one-tooth saw will cut a given amount of chips between sharpenings. A two-tooth saw will cut twice as many chips between sharpenings. Proper chip load being respected, the more teeth, the longer runs between sharpenings. A saw having but few teeth needs tungsten carbide tips to secure substantial cutting life. Negative angle side cutting teeth and very high rim speed are required to get smooth cutting with this type saw.

Where To Use

Chip-thickness-control type saws are more desirable on types of machines other than the mechanical feed type, such as radial arm, variety saw tables and electric hand saws.

Today, we have laminates, with metal and plastics added to the new abrasive glue, wood fibre bonded with everything under the sun, including stone cement; plastics of innumerable types, combined with wood flour or chips, cloth fibres, paper, asbestos and to top the list of abrasive materials, glass fibres. These combinations of highly abrasive materials present their own problems.

Engineering analysis often reveals the need for operating characteristics that are not obtainable with the equipment at hand. The saw engineer must then think in terms of possible modification, changes in the machine that are practical and within reason and compatible with a saw design that will do the job. It is well recognized in engineering circles that mechanical

laws may be violated. However, the degree of violation is reflected in the quality of work, production volume and higher saw maintenance costs.

For ripping, the most teeth consistent with chip load and ample gullet room for chip clearance is a sound rule. More teeth provide longer wear. Ample gullet room to carry the chips out is a "must" and the more gullet room required, the less teeth.

The kind of material, its characteristics, *its thickness*, the rate of feed and the saw speed under load are each essential elements in determination of chip load and number of teeth.

Most of the modern power feed straight line rip saw machines are equipped with very substantial saw arbors, running in precision bearings, with ample power to sustain rated saw speed under full load. These features are supplemented with excellent means for holding the lumber during sawing operation and good control of the rate of feed. Such machines are ideal for tungsten carbide tipped saws. It is imperative, however, that these machines be checked regularly to prevent loss of original accuracy. With saw arbor speed control added to the optional feed rate control now available, all fundamental requirements essential to maximum efficiency would be provided.

Tension

Tungsten carbide tipping of saws may hold a solution for the problem of tension. A solid steel saw tooth of the best edge holding steel ever developed loses its edge holding quality as the velocity or speed of travel increases. The faster the tooth travels, the more abrasive is the cutting action, resulting in more frequent sharpenings and a shorter saw life. The hardness of tungsten carbide and its resistence to abrasion opens up a new horizon of increased saw speed. With the removal of the limit on saw speed, we do not know just how much faster they may be operated and continue to be economic to maintain. With saw speeds well above 5,000 r.p.m., centrifugal and gyroscopic forces become factors which may be utilized to secure saw rim operating rigidity that has been impossible of achievement heretofore.

There are good 'down to earth' reasons why satisfactory and economic gang saw operation can be obtained with carbide saws. These saws will be designed to be free of the tension problem, to operate at super speeds; each tooth will take a light chip load and will have a rigid rim with side planer teeth to obviate leading and

(Continued on page 56)

RIGGING used to carry truck load units across the river is shown above.

CABLEWAY system (800 ft. long) which eliminates the use of a bridge over the Salmon river.

Cableway Spans Logging Hex

Bob Forbes of Moscow, Idaho, reports on a high-line logging operation which overcame the problem of logs on one side of the river and the sawmill on the other.

Latest adaptation of high-line logging has been installed by the Prairie Lumber Company, Grangeville, Idaho, in a section predominated by tractor logging!

Standing timber of the lumber company is across the Salmon River from the sawmill at Grangeville—near the hamlets of Boles and Joseph—with 34 miles of hilly road and an inadequate bridge across the main river between. The distance and hills weren't much of a bother to modern trucks, but strengthening the bridge was near impossible and would cost a lot of money.

So co-owner Bill Ketcham contrived a system of Pacific steel ropes to get logs across the water, a truck load of 6,000 bd. ft. at a time. The cableway he rigged up is 800 feet long and has four 1⅛-inch cables to support loads of logs. Two 1⅛-inch wires raise loads to a tram car and also lower them onto trucks. Two other cables haul the car back and forth.

The last four cables are controlled by drums of a Willamette yarder.

The main cables are anchored below their supporting towers by "dead men" of concrete.

"We were able to move over a million feet in the first 12 days that our cableway was in operation," claims Ketcham.

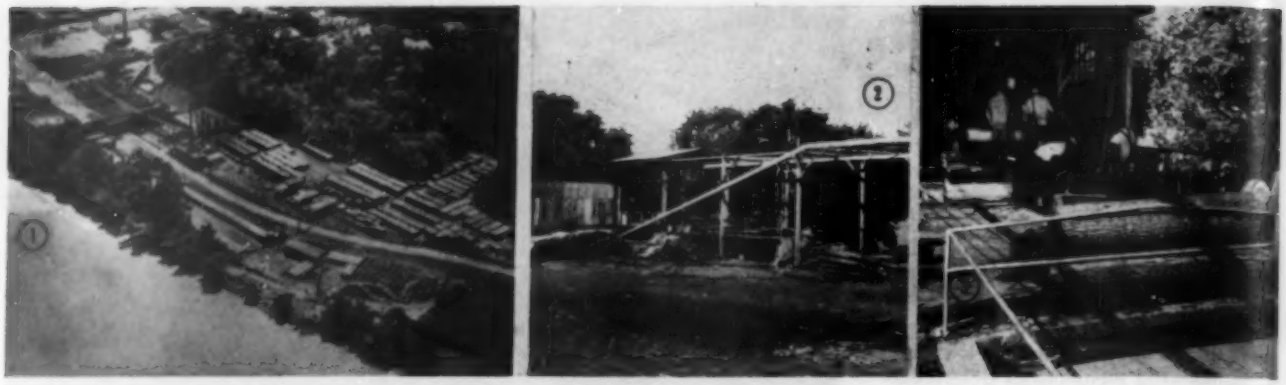


FIG. 1. Aerial view of the Cavalier mill. FIG. 2 and 3 show the veneer mill with its equipment including one of the world's longest blowpipes.

A Graphic Picture of the Cavalier Mill

Here's a story about invention, innovation, and imagination as it applies to the lumber manufacturing and veneer end of one of the Nation's largest cedar chest and furniture manufacturers. Presented at the Midwest FPRS meeting by Bill Raoul. The first of two parts.

by **W. G. RAOUL**
Cavalier Corp.

Let us take a look at the aerial photo showing the Cavalier furniture plant and the other operations connected with it (Fig. 1.) The lumber yard may be clearly seen in the middle of the picture with one branch running well back into Blue Goose Hollow toward the upper right-hand corner of the picture.

The furniture factory may be seen in the upper left-hand portion of the picture, located on both sides of the street which is bridged by a wide connecting section between the two buildings. The boiler rooms are located almost in the center of the scene and may be clearly identified. Coming from the boiler room, down toward the lower right-hand of the picture, may be seen what is one of the world's longest blowpipes. This serves the gang saw mill and a small veneer operation. The gang mill is in a little building of its own and the veneer operation is in the lower right-hand corner, in one end of a large warehouse building.

The piles of logs are clearly seen stacked between the veneer and saw mills. Notice the short lengths of the logs. This operation was set up primarily for cedar which is always produced in 8 ft. logs. We even have to take some shorter lengths, down to 5 ft. Today we saw poplar as well as cedar and buy these logs in the same short lengths.

Undoubtedly, there is an increase in waste in using these very short logs. This is a disadvantage which we have not been able to entirely overcome. On the other hand the short lengths are much easier to bring in on trucks because they can be stacked crossways. Most of our supply comes in this way from within fifty miles of Chattanooga. Other logs are shipped by rail, and here, too, the short lengths have been easier to handle.

We have often considered the possibility of shipping our logs by water since our location would lend itself admirably to this method. The only difficulty is that we have never been able to accumulate enough logs in one place to make a satisfactory barge load, and it is doubtful whether we will ever find this practicable.

The veneer mill is the next step. Fig. 2 gives an over-all view of our lathe, soaking vat, and handling equipment. The following reasons led us to put in this veneer operation. We built our saw mill to give us a better and more economical supply of cedar lumber. We soon found that we could also produce a large part of our poplar core stock. When we began buying poplar logs we realized that a certain proportion of them would make good veneer. There was also a good opportunity to make the best possible use of our better grade logs. We finally decided to put in a short lathe and produce poplar veneer for drawer bottoms, back panels and for crossbanding.

We also laminate some cores out of one-eighth veneer as an alternative to our lumber cores. We do not yet have enough experience with these laminated cores to give accurate cost comparisons between lumber and veneer, but we do know that the laminated cores eliminate the troublesome problem of sunken core joints.

The handling equipment at this veneer operation centers around an overhead traveling hoist supported on steel framework. The trolley rail extends well out beyond the soaking vat, as may be seen. Logs are picked up here and lowered into the hot water. The same machine lifts them out on to the deck where they are bucked to length and peeled of bark. So far we have been operating only in the summer and our bark comes off easily enough. When winter comes we will have a real problem in skinning these logs, and under the sharp lash of necessity we will have to work out some better way of doing it.

The next picture (Fig. 3.) is a closer view of the lathe and log deck. The hoist is visible at the top of the photograph. Since our lathe is mounted high above ground level, there is room directly beneath the machine for a hog in which we reduce the waste veneer and bark. This refuse is then taken through the blowpipe system to the boiler room.

The gang mill comes next. Our log haul which serves the mill is probably the lightest log conveyor ever built (Fig. 4.) It was designed primarily for logs of very small diameter. For-

FIGS. 4-5 show the gang mill conveyor and mobile crane set up. FIG. 6 shows the circular mill log haul.

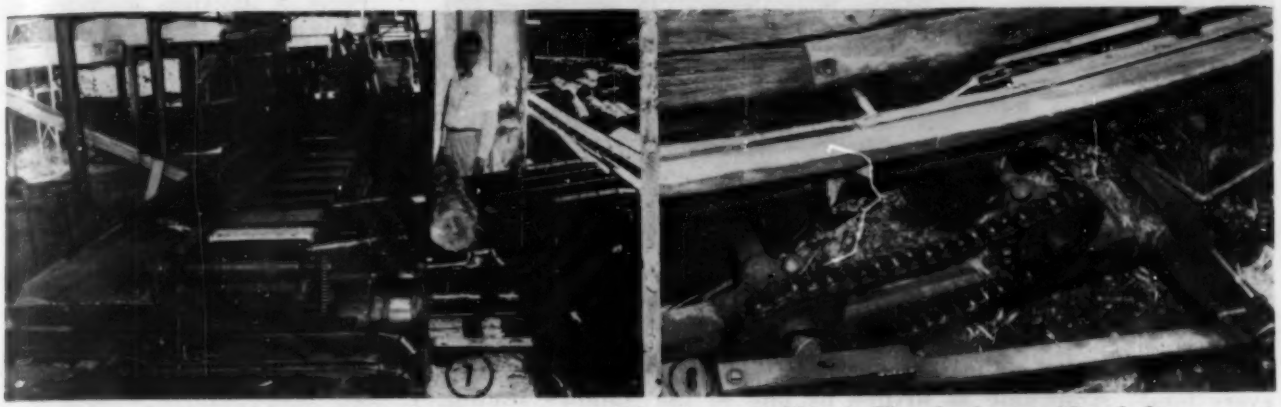


FIG. 7. Mr. Raoul at the circular mill. View is from off-bearing end. FIG. 8. The clutch assembly of the conveyor between circular mill and gang mill.

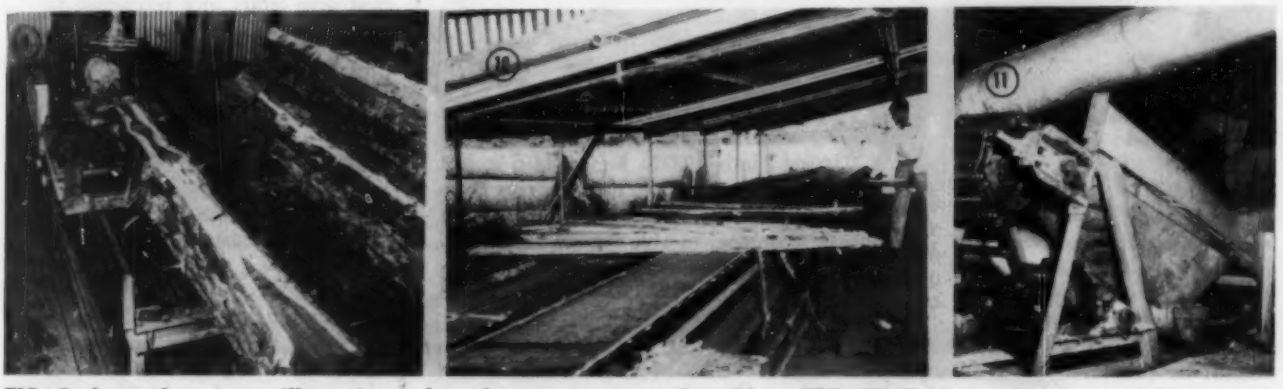


FIG. 9 shows the gang mill carriage, short logs present a real problem. FIG. 10. Conveyor from gang mill to green chain. FIG. 11. Waste conveyor system.

tunately, it has stood up well even under heavier loads and the whole operation of this conveyor has been very satisfactory. We unload railroad cars with the mobile crane, which may be seen in the upper right-hand portion of the picture. This is a 10,000 capacity Kranekar, with a 25 ft. boom. The logs are stacked on bunks alongside the conveyor, and they can be easily rolled on to the chain by two men. For a close up of the tail wheel of this conveyor showing the screw take-ups, the wooden framing of the conveyor, and the log chain with its carrying lugs, see Fig. 5.

The log haul at our small circular mill is shown in Fig. 6. Here we split larger logs and straighten very crooked or knotty cedar. Since the gang mill will only take logs, or cants, from fifteen inches down, it's necessary to break down the larger logs before they go to the gang. This operation adds labor cost, but often raises the grade of the lumber produced.

Another picture (Fig. 7.) shows the circular mill as seen from the off-bearing end. The small amount of lumber produced is carried away to the left on a short belt conveyor acting as a green chain. Logs and cants which have been through the mill are carried back to the log haul or turtleback chains. Most cedar logs can go directly to the gang mill without this preliminary circular operation, but we still have enough defective logs to make this operation necessary.

One of the marvels of our system is that there is always just enough work at the circular mill. We cannot lay this happy condition entirely to brillant engineering. As long as it is necessary to run the circular mill, the operating crew finds ways to make the work even up as they go along. This result happens whenever you couple two or more operations together in a mechanized setup and is one of the reasons why it is so easy to go too far in planning close-knit operation. Sometimes it is better to have a little slack between processes rather than to tie everything together in one interlocking system.

Our log conveyor has a break in it between the circular mill and the

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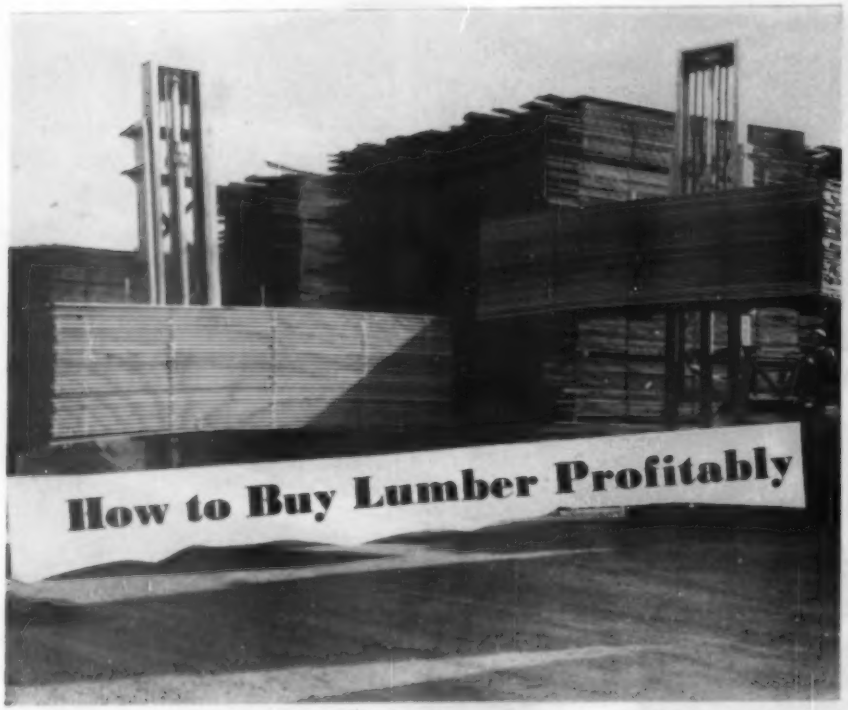

How to Buy Lumber Profitably

Part Two of a two-part article on the methods to get the most from every lumber purchase as written by one of the Nation's leading authorities on wood identification and use.

by **JOHN RENO**
Industrial Engineer
Pacific Lumber Co.

Occasionally a purchasing agent is confronted with the necessity of buying a schedule of lumber with definite strength requirements for some structural purpose. Here informed specifying is necessary and the bill-of-material should be prepared by the company engineer or whoever is responsible for deciding that certain strength requirements are needed.

The commonly used species for structural purposes are Southern Pine and Douglas Fir, although many other species are also suitable for many applications. The grading rule booklets of the Southern Pine Inspection Bureau and the West Coast Lumbermen's Association name and describe stress grades to which have been assigned definite values in bending, tension, compression, and shear. It is easy for a buyer to look at his requisition from the engineer, see the stress grades requested thereon, and then choose from the association rule books the grades he should buy. Stress grades in a number of species are listed in Table No. I of the booklet, "National Design Specification," of the National Lumber Manufacturers' Association, 1319–18th Street, N.W., Washington, D.C. It can be had for 25 cents a copy. Sometimes the structural lumber is to be used in a wet location where decay may occur. Here the stress grade of the heartwood of a naturally durable wood, or of lumber properly preservatively treated, should be bought. The engineer should specify his requirements.

Two of the classifications into which lumber is divided are yard lumber and shop lumber. Some purchasing agents do not differentiate sufficiently between these classifications. If the lumber (other than structural or stress grade) to be purchased is to be used in approximately the full dimensions that are ordered, it should be purchased as yard lumber. On the other hand, if the lumber is to be cut up into pieces of various sizes and shapes with knots, etc., limited on these cuttings, then a cutting grade is recommended, and shop lumber should be ordered. Neither of these classifications satisfactorily takes the place of the other, although one is often mistakenly bought when the other type is actually desirable for the work to be done. If the lumber is to be used for a structural purpose, it is best to specify the required stress grade.

Maybe a new lumber buyer has little familiarity with lumber terms and calculations. This should not scare him, as they are simple and easy to learn.

Most lumber is bought at so much per thousand feet board measure (M'BM,) or surface measure (M'SM,) or per hundred feet lineal measure (C' Lin.)

A simple way to arrive at the board measure in any quantity of lumber is to multiply the number of pieces by the nominal thickness in inches by the nominal width in inches by the nominal length in feet, and then divide by 12; that is,

Pieces × thickness in inches × width in inches × length in ft. ÷ 12 = BD. Ft.

Or, for example:

220 pcs. × 2″ × 6″ × 24′ ÷ 12 = 5,280 ft. board measure;

and 5,280′ at $225.00 M'BM = $1,188.00.

Use the above as a guide and try a few. There are many short cuts which can be picked up as one goes along.

Surface measure is just as easy. Forget about the thickness and multiply the number of pieces by the nominal width in inches by the length in feet, and then divide by 12. It is just the same as board measure except one omits any reference to the thickness in the computations. For instance, let's get the number of feet surface measure in 180 pcs. 5/16″ × 8″ - 16′. Our formula is:

Pieces × width in inches × length in feet ÷ 12 = feet surface measure,

or,

180 pcs. × 8″ × 16′ ÷ 12 = 1,920 ft. surface measure;

and 1,920′ at $150.00 M'SM = $288.00.

Mouldings are generally bought by the lineal foot or per hundred lineal feet. For example, 14,800 lineal feet of quarter round at $1.50 per C' lineal = $222.00.

One may be handed a requisition for mouldings with the quantity given in board measure and desire to change to lineal measure for purchasing purposes. When the thickness and width of the moulding are such that it must come out of lumber of nominal thickness and width of 1″, or greater, the formula to use is: Board measure times 12 divided by nominal thickness in inches times nominal width in inches.

For example, how many lineal feet in 500 ft. board measure of 1¼″ x 3″ screen stock? The formula is:

500 ft. board measure x 12 ÷ 1¼″ x 3″ = 1600 ft. lineal.

When very small patterns like 5/16″ x ⅝″ screen mouldings are involved, it is necessary to know the nominal sizes from which it is intended to produce the moulding to determine the board

measure in a given number of lineal feet, or to work back to lineal feet from board measure. Some manufacturers resaw from fractional nominal sizes; others use thins that develop in producing 1" lumber, to get stock for thin mouldings. (Fractional nominal sizes are 1¼", 1½", 1¾", etc., as compared to 1", 2", 3", etc.)

Now for a little discussion of prices.

A salesman soon learns whether a purchasing agent is a good buyer, whether he is a fair one, and whether he is honest. By the same token the buyer just as quickly has the same information on the salesman .

Naturally, a good buyer wants to buy at as low a price as possible, everything else being equal. Where price is to be the governing factor it is important that everything else be equal, and that the lumber specification be clearly written so that each lumber salesman will know exactly on what he is quoting so that he can price his stock accordingly. This helps both buyer and seller.

In considering quotations on an inquiry, be sure to check grades, thicknesses, widths, lengths, degree of working (such as S2S, rough, S4S, D&M, etc.,) etc. For instance, one salesman might quote on 6 to 20 ft. lengths and another one on 10 to 20 ft. lengths. If you need the longer lengths, the 10 to 20 ft. might be the better buy at a higher price. Specified lengths generally cost more and often are worth the higher cost to the buyer. Random widths 6 to 12 inches usually are priced higher than 4 to 12 inches for instance, and again the buyer may prefer the higher-priced assortments. Odd widths or lengths, such as 5 ft., 11 ft., 13 ft., etc., may or may not be acceptable at a lower or higher price. The same is true of odd widths.

Be sure you know whether the salesman is quoting board measure or surface measure. You may want some stock surfaced to, say 9/16 inches and the salesman would quote on 1¼ inches or, as it is known, 6/4 inch, resawed and surfaced to 9/16 inch. He may quote a price of, say, $150.00 a thousand feet. You may think he means per thousand board measure, while he really means per thousand surface measure for the 9/16 inch—quite a difference.

As surfaced lumber weighs less than rough stock the freight will be less but this may be offset by the mill's charge for dressing the lumber.

There is a hazard in buying green lumber dressed in that seasoning defects such as checks, etc., may later appear on the surfaces and since the stock is already dressed you may not have the thickness or width to spare for further dressing to remove these defects. Also green lumber can decay in storage unless properly piled. Of course even dry lumber shipped dressed can get dirty or marred during shipment.

Be sure all suppliers are quoting on delivered prices to the same point. Obviously the price of the man quoting an f.o.b. destination price should be higher than the one not including freight in his bid.

Carload prices per thousand feet are generally lower than for "less than carload" shipments. A buyer may decide he can save money for his company by purchasing a full carload of an item, used constantly in small lots, and storing it against demand. Storage costs, insurance, etc., must be taken into consideration.

Often as little as a third of a car can be purchased at carload prices by buying in conjunction with one or two other purchasers who want similar quantities when a common unloading point can be agreed upon or when all customers have railroad side-tracks on connecting carriers.

If there are to be any stopovers for partial unloading of pool cars at some point other than your factory, remember somebody will have to pay for that stopover, and a prior understanding with the seller is desirable. Diversions of cars must likewise be paid for by somebody.

Time of shipment may also be important to you. Have a clear understanding on this point.

In a fluctuating market the price at time of shipment might be considerably lower than at the time the order is placed. Some mills protect customers against both rising and falling markets. An understanding on this score might be desirable. When dealing with some mills it is not safe to order a car of lumber without specifying the minimum and maximum amounts wanted. On a rising market a mill might ship you a minimum car of 18,000 ft., and on a falling market, as much as 40,000 ft., if your order read merely one carload. The financial responsibility of the seller is often considered important by the buyer.

Sometimes a buyer may serve his company better by purchasing from a supplier whose price is higher than other bidders. This might be because the higher-priced supplier may have a better product. This is possible even though the species and the grades are identical. Some lumber manufacturers seem to produce a better product than others. Lumber users and buyers soon get to know the products of their suppliers. Or, experience may show that a mill delays old shipments un-

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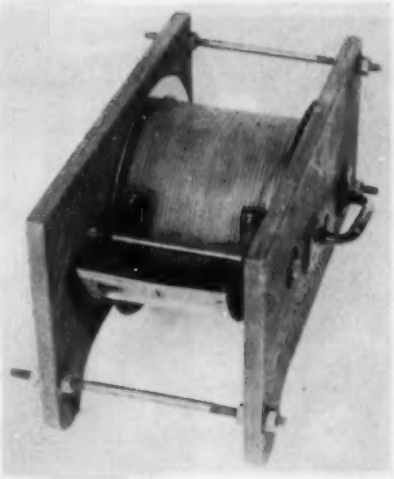


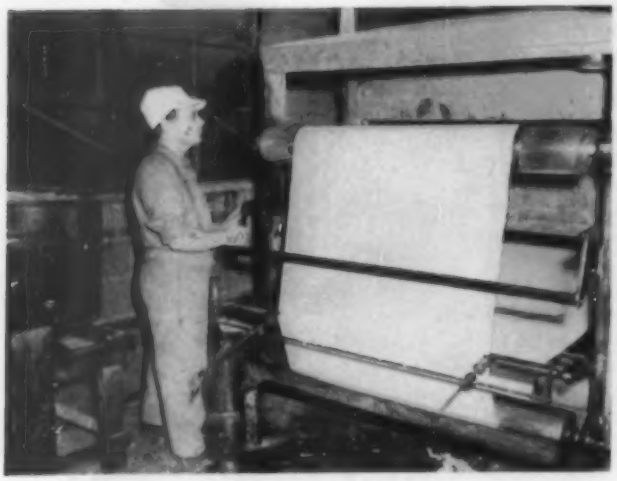
Hand Operated Glue Spreader

New Spreader Is Easy to Use

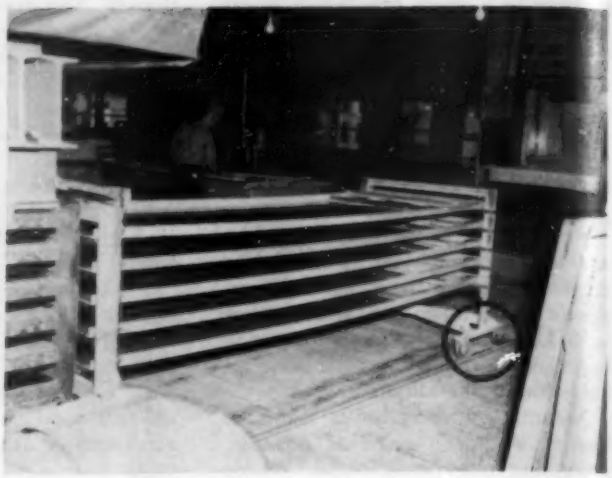
A simple, hand-operated glue spreader, developed at the U. S. Forest Products Laboratory at Madison, Wis., in the course of its research, provides a convenient method of applying a uniform glue film to long, narrow wood strips. The spreader was designed so that it can be moved by hand along the upper surface of the wood strip; it will handle material up to 4 inches in width. The glue reservoir, 4 inches wide and curved to a radius of about 3 inches, has sufficient capacity to cover about 75 lineal feet of nominal 2-inch-wide lumber at a spreading rate of 50 pounds of glue per 1,000 square feet of area. The simplicity of the unit facilitates thorough, easy cleaning after use.

The compactness and portability of the device make it especially useful for small gluing operations where limitations of space or cost do not permit the use of a stationary, motor-driven spreader. Its construction requires only those skills and facilities ordinarily found in a small workshop.

As shown in the photo, the spreading mechanism consists of a cylindrical wood block or roller mounted in a plywood frame. The cylinder is covered with corrugated rubber floor matting and is flanked with protruding metal flanges. The metal glue reservoir is hung on the bolt so that its bottom edge forms a "doctor" bar with the cylinder and can be adjusted to regulate the flow of glue. Rubber skirts form a seal between the sides of the reservoir and the flanges.



BUCKSTAFF uses *Melmac 405* in making decoratives.



LOADING the press. Note caster arrangement on trays.

Buckstaff Paces the Furniture Trend

Since 1882, the Buckstaff Co., Oshkosh, Wis. has been producing furniture and wood products that reflect the future rather than the past. Moving in advance of the industry, their history should be of interest to all.

Profitable woodworking manufacturing operations oftentimes center around management's awareness of the economic picture which surrounds it. At the Buckstaff Company, Oshkosh, Wisconsin, the only thing old about the company is its name and business history.

Starting operations some seventy years ago, in 1882 to be exact, the company has made lumber, furniture, caskets, commercial furniture and desks: now is embarking on a program of decorative laminates bonded to cores for the furniture industry.

For years the sawmill, casket and chair end of the business have been the company's mainstay. In 1940, the firm began manufacturing directors' tables when they took over the Fon du Lac Table Co.

UP to World War I, the hardwood casket field was highly important to the company, but since that time, with the exception of metal shortage periods, the metal casket has replaced the volume production of hardwood items.

Metal working activities have been an adjunct of the Buckstaff operations for at least 15 years, so that metal working know-how and facilities are available. Thus, fabrication of wood-metal combinations is possible.

Buckstaff's entry into the sawdust core-decorative face field is no accidental manoeuver. The firm has had a plastics division since the end of World War II. The company is one of the few in the state to manufacture decorative laminate sheets for use by other panel fabricators. This year marks the beginning of the manufacture of the complete panel for use in their own furniture as well as others who need it.

Named "Tru-Surface Resilyte", the panel consists of decorative laminates impregnated with melamines bonded to a granulated wood type core. Phenol is used to bond the decoratives to the core stock and tests have indicated that the three ply panel has remarkable flatness and stability. The boards will be manufactured in large panels and will be produced in 9/16-in., 11/16-in., and 13/16-in. thicknesses.

At the present time only 16 men of the 230 people at the plant are at work in this division under the direction of Frank Schultz. If the operation progresses as envisioned, this staff will be greatly increased.

When a firm combines decorative laminate manufacturing with plastic surfaced panel making, control over production techniques is increased. Delamination of the face from the core, and the uneven surfaces that may appear have been two bugaboos to many a plastic panel manufacturer. By proper attention to moisture content during fabrication, and the know-how that has been built up over the past six years in decorative manufacture, Buckstaff's plastic division feels certain that it can offer a product free from these headaches.

One of the big advantages in the switch from ink making decoratives to the job of making the panel that goes under them lies in the fact that the application of the decorative to the panel is a critical operation where too many panel fabricators fumble. Thus, Buckstaff feels it can increase the decorative business by also being in the panel business. Wider use of decoratives at less cost is also possible for the combined operation means less waste, as panels can be made to size easier.

Granted the plastics division is a minor item compared to the tens of thousands of chairs produced annually at the Oshkosh plant. However, the chance to utilize waste materials, plus the infinite combination of wood-plastic-metal to fit the needs of the wide number of customers shows that the firm is in an excellent position to furnish what is wanted by the buyer.

At the beginning of 1952 when the industry's future is slightly unpredictable, it is encouraging to report on a company which has had the foresight to adapt plant facilities to the needs of the market. "We built 'X' product for 90 years, and are going to build them for the next 90, in spite of what the customer wants", is not Buckstaff's philosophy. Adaptability as displayed by Buckstaff indicates that there is hope for the furniture end of the forest products industry.

202

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FAST FEED
STRAIGHT LINE RIPPER

Here's why so many woodworkers standardize and recommend the 202.

Single chain construction.

You can rip silver edgings which will not jam.

Smaller size saw blades can be used:
14″ saw cuts 4″ lumber
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Hardened wear-resisting track and chain blocks.

Yielding Guage saves lumber and assures faster edging and ripping.

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Provides straight-edge accuracy for glue joint work.

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Please send for Circulars on Rip Saws . . . Moulders . . . Turning Lathes . . . Sanders . . . Automatic Stroke . . . Hand Lever . . . Hand Block . . . Variety . . . Edge . . .

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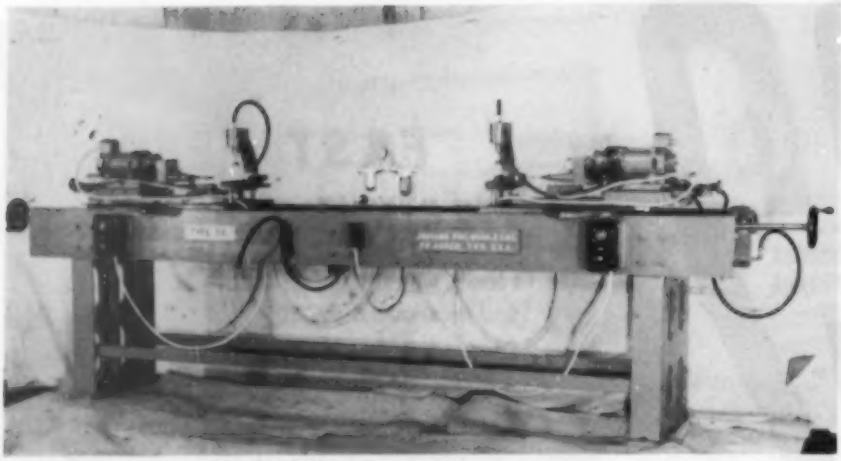

DOUBLE-END boring and chucking unit with air-operated clamps

Special Equipment Speeds Long Handle Production

Mass-producing long handles for shovels, rakes, hoes and other outdoor equipment is far more specialized than one might think. Here are the latest production aids.

by JOHN HYLER

Rake, hoe, pitchfork and other such tools used out of doors nearly always have handles made from ash. This material stands the weather very well, and combines the necessary degrees of strength and lightness.

The length of most long handles is such as to lend themselves particularly well for production from short logs. Many handle factories process straight long handles directly from short bolts or logs.

After the short logs or so-called bolts are cut, they are taken to a bolter or short-carriage sawmill. The boards are then edged and gang-ripped into handle blanks, then they are taken either to a dowel turning machine or to a Chaplin lathe. The dowel turning machine is splendid for processing long handles which are to have exactly the same diameter throughout their length.

Swells or Tapers

In cases where long handles have swells or tapers, they must be processed through a Chaplin lathe. This is fairly similar in design to a dowel turning machine, but is provided with an auxiliary hollow cutterhead which is used for finishing. As the previously-rounded handles pass through this finishing head, the knives in the head are made to expand and contract as necessary to produce the required swells and tapers.

Where one end requires chucking to fit a tool socket and the other end is to be round-topped, it is customary to use a double-end chucking unit, so that both ends may be machined at a single handling.

One such machine has two complete motor-type chucking units incorporating motors of one H. P. running at 3450 R. P. M., and with suitable air cylinders for advancing the two chucks to the cut. Such machines may be set up very rapidly, and are economical even for relatively short runs.

Double-End Chucks

Some double-end sawing and chucking machines are equipped with special carrying chains, and have varying feed speeds. There is a special device for holding the workpieces, one at a time, rigid and perfectly centered with the chucks, while those chucks advance and retreat.

Long handles are often smoothed and dried in special tumbling drums. Where logs or bolts have been directly reduced to handles in the manner described, without any intermediate drying operation, it is necessary that a drying operation follow. The drum used must be just an inch or two longer inside than handles to be tumbled, so they will have adequate tumbling clearance, yet will not be offset enough in their lengthwise positions. Some tumbling drums used for this purpose are mounted on a hollow revolving shaft. Heated air can be blown into the shaft and allowed to directly enter the tumbling charge through radial holes communicating with the large axial hole.

Usually such tumbling smooths the handles, in addition to drying them. A short while before removing them from the tumbler, a judicious amount of chipped wax or paraffin may be added to the charge for self polishing. The tumbling method is generally used on broom handles.

Automatic Sanders

There is a relatively new machine used for sanding long round handles in various places, which has its feed arranged so that the revolving handles are carried across the abrasive surfaces of the running belts in a direction only 30 degrees removed from the direction of belt travel.

The advantage of sanding such handles in this way is that of sanding more with the grain than across it. In addition, such oblique presentation of surfaces to the belts results in a much larger amount of abrasive grain being in actual contact with the handles at all times.

Dip Finishing

In dipping long handles in finishing material by the squeegee process, a screw-eye is temporarily mounted in the lower end of the handle. A special small-volume dipping tank with a pipe which extends downward is used. The pipe is tightly capped on the bottom to make it leak-proof. It is somewhat longer than the longest handles to be dipped.

Directly above, close to and in line with the axis of the pipe a staunch metal ring is supported. To this ring is securely affixed a section of sheet rubber. In the center of the rubber, a circular hole is cut which is enough smaller in diameter than the handles being dipped so that there will be a squeegee action on the surfaces.

Thus, a handle is gripped by the screw-eye inserted in its end, is thrust down through the hole in the rubber, and on down into the finishing material in the pipe beneath. As the handle is slowly drawn upward again, the rubber functions to strip all excess finishing material from its surface. The handle can then be hung up for drying by the screw-eye.

You can reduce wet sanding time...

NEW "Red-I-Cut" Waterproof Paper by CARBORUNDUM cuts faster—produces a better finish—lasts as much as *50% longer* on production runs. It's flexible, yet sturdy, with an extra-tough backing.

Since it lasts longer, down-time is reduced. Thus, substantial time savings are effected in the over-all finishing operation. See your CARBORUNDUM representative, or write Dept. W 82-128 for full details.

Ask for the RED-BACK paper by

CARBORUNDUM

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"Carborundum" and "Red-I-Cut" are trademarks of The Carborundum Company, Niagara Falls, New York

82-128

How Drexel Trains Personnel

Here is a two-part story of the training program of one of the South's most progressive furniture manufacturers. While all plants have different training problems, the methods outlined here and presented at the recent FPRS National meeting will be of value in showing what can be done.

PART TWO

by G. MAURICE HILL
Drexel Furniture Co.

Orientation of New Employees and Training of Workers with Technical Skills

In approaching the problem of training the individual workman or mechanic, management has again come to believe that it is important for every man in the organization to know something of the policies and overall operations of the company for which he works, in order to do a satisfactory job at his individual post. After this orientation is completed, it is then necessary to take up the problem of special training for those employees with technical skills, which must be adapted or further developed to fit our particular needs.

A training program has been developed which provides each new employee with a brief, but nevertheless thorough orientation period, in which all phases of the company's policies, planning and objectives are laid before him, with particular regard for those which will affect him as an individual.

The *first phase* of this program is outlined in detail as follows: (1) Brief outline of the history of the company. (2) Discussion of the organization chart, showing company management and major division of the functions of each division. (3) Discussion of employee benefits. (4) Outline of company personnel policies, including rules and regulations for employees. (5) Discussion of products manufactured by the Company from the customer's viewpoint, with emphasis on the significance of sales, promotion and advertising in providing steady employment. (6) The role of the individual employee in furthering the interest of the company, as well as his own personal welfare.

In the *second phase* of the program of training workers with technical skills, it has been found extremely difficult to approach this matter in a formal manner, except through the time-honored relationship between the foremen and employees, who give him as much individual time and attention as possible.

Training Future Management

Management feels that the woodworking industry in general, and the furniture industry in particular is at the threshold of a new era of industrial development, with primary emphasis to be placed first, on modern manage-

MAHOGANY, too!

In Gamble Brothers' dimension parts production-line, mahogany goes hand in hand with Southern and Appalachian hardwoods. Gamble Brothers can furnish your solid or laminated mahogany parts, rough, or finished ready to assemble, made of fine Central American mahogany.

For over fifty years, Gamble Brothers' wood-engineering "know-how" has successfully solved production problems for manufacturers of fine mahogany furniture and other hardwood products. Let Gamble Brothers' knowledge and skill help you.

WRITE TODAY.

Gamble Brothers Incorporated
Engineered Wood Parts in Southern and Appalachian Hardwoods, Walnut or Mahogany

MAIN PLANT: LOUISVILLE 9, KY. • BRANCH: MONTGOMERY, ALA.

new Furafil 100 is a new low cost extender for phenolic resins and is now used successfully in the manufacture of Douglas Fir plywood.

available Furafil 100 is available throughout the year. It is not produced on a seasonal basis but is a year around operation.

controlled Furafil 100 is produced in a chemically controlled process and is ground to specifications required by the plywood industry as follows:

Through 100 mesh 99% • Through 200 mesh 95% • Through 325 mesh 90%

low-cost A cost analysis will show that the use of Furafil 100 will result in savings to many users. Investigate Furafil 100 as a means of lowering your glue line costs.

Write for samples and try this new extender.

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The Quaker Oats Company CHEMICALS DEPT.

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CHICAGO 54, ILLINOIS

P. O. BOX 4376, DEPT. 20, PORTLAND 8, OREGON

ment methods, and second, on new technical skills and machinery.

It is, therefore, imperative that new employees with specialized training be brought into the organization, in order to develop a reservoir from which to draw the future key employees and executives of the company.

The plan which developed is as follows:

Junior Management Clinics

A. *Purpose:* To develop basic management skills; to acquaint new members with the structure, functions and problems of the Drexel Furniture Company; and to implement the technical knowledge being gained by "on-the-job" training.

B. *Operation of the Course*

1. *Meeting Times*
   (a) Once each week for 8 weeks in spring and fall. (b) Meetings to be held at the main office in Drexel. (c) Meetings to begin after working hours at time most suitable to group.
2. *Method of conduct*
   (a) Lecture by key personnel responsible for each function (one-half hour). (b) Discussion—not to exceed one-half hour. (c) Chairman of meeting—personnel director or assistant assigned by Director.
3. *Mechanics*
   (a) Invitations to each meeting accompanied by outline of topics for discussion. (b) Eligibility—junior management trainees. (c) Use of charts and graphs where appropriate. (d) Detailed write-up to members at conclusion of sessions. (e) Certificate of successful completion following last meeting with dinner and address by the President on Management Objectives.
4. *Supplemental Work*
   (a) Establish a technical library to be used by trainees to supplement other training. (b) Occasional special assignments using text books as references.

C. *Topics*

1. *The Furniture Industry*—History, organization, geographical centers, peculiarities.
2. *The Drexel Furniture Company*—History, units, operations, management structures.
3. *Sales*—Place in industry, competition, organization, quality.
4. *The Furniture Market*—Functions, Drexel participation, problems, evaluation.
5. *Customer relations—Advertising*, selling aids, promotions.
6. *Design*—Types of furniture, style changes, samples, development for production.
7. *Production Management*—Functions, organization, integration, problems.
8. *Production Control*—Planning, scheduling, routing, control.
9. *Costs in Furniture Manufacturing*—Breakdown—general, standards, controls, annual statement.
10. *Personnel Department*—Functions, organization, labor relations, developments.
11. *Wages and Job Evaluation*—Competition, general wage changes, job evaluation, administration.
12. *Research*—Organization, areas, developments, projects.
13. *Waste*—Raw Lumber, drying, cutting, in-process lumber.
14. *Quality*—Standards, employees, vulnerable points, style factors.
15. *Machine and Process Developments*—Glues, conveyors, mechanical equipment, electrical devices.
16. *Materials*—Types, problems concerning materials, change in use, forecast.

(Continued on page 44)

Ammunition Box Hardware

If your contracts call for hardware for ammunition boxes like that shown here, or for other ordnance equipment—save time by consulting Stanley. The largest manufacturer of hinges and hardware specialities, The Stanley Works has the "know-how" to help you develop the items you need, and the plant facilities to supply them on time.

Send us complete details of your requirements, including prints, if possible. We'll help you meet delivery commitments.

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STANLEY
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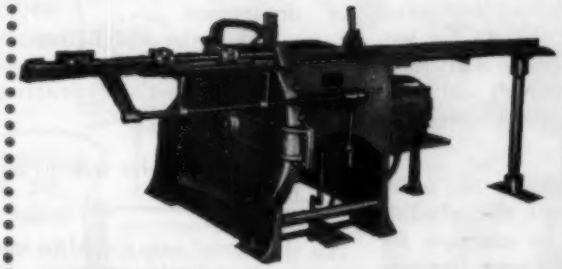
HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL STRAPPING • STEEL

Mereen-Johnson MACHINES

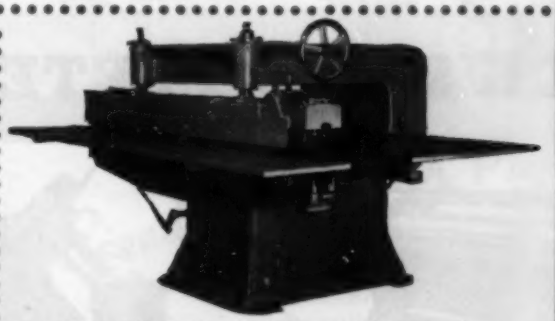
No. 441 GANG RIP SAW. For fast production on the most difficult gang ripping jobs. Six power driven feed rolls . . . 12″ or 19″ saw space . . . up to 125 HP . . . variable feed drive up to 300 ft. per minute. *Ask for Bulletin No. 441.*



No. 477 CUT-OFF SAW. Capacity equals two or three swing, straight line or roller carriage cut-off saws—depending on the type and condition of the stock. Excellent for box work. *Ask for Bulletin No. 477.*

VENEER JOINTER

Traveling head principle eliminates shifting. No chain feed—no "stock wobble". Perfectly joints bundles of veneer up to four inches thick. Sizes from 90″ to 212″. *Ask for the Jointer Bulletin.*

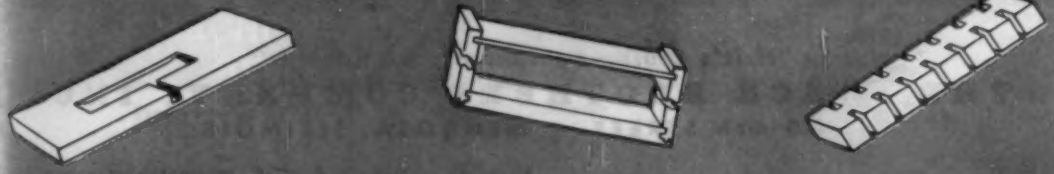


VENEER SPLICER. Makes precision tapeless joints. Adjusts itself automatically for varying thickness of veneer normally encountered. Welded steel frame with 49″ throat clearance at right. *Ask for Bulletin No. 50.*

The experience—the equipment—the manpower for producing *Precision Machines.*

Mereen-Johnson MACHINE COMPANY

4401 LYNDALE AVENUE NORTH, MINNEAPOLIS 12, MINNESOTA



(Continued from page 40)

On-the-Job-Training

A. *Purpose:* To give trainees technical training in the many phases of furniture manufacturing by working in various departments throughout the company.

B. *Training Schedule:* The training schedule for each trainee will depend upon the individual's previous training. The first or basic phase of training will consist of assignments throughout the various departments in the plants. The second or advanced phase is intended to give more thorough and complete training in the various specialized fields.

In order to provide for the needs of all types of trainees, the schedule as outlined should be adequate for any employee without prior furniture knowledge or experience. The amount of training, starting place, etc, will vary with individuals.

1. *Plant*
   (a) Two months—rough machine, (b) Six months—finish machine, (c) Three months—cabinet, (d) Three months—finishing and rubbing, (e) Three months—shipping, (f) Three months—sample, (g) Three months—research.
2. *Office*
   (a) Three to six months—personnel department,
   (b) Three to six months—production planning department,
   (c) Six to twelve montns—sales department,
   (1) Order and Billing
   (2) Advertising
   (3) Interior decorating and show room
3. *Retail Store*
   (a) Six to twelve months on retail floor.

C. *Selection*

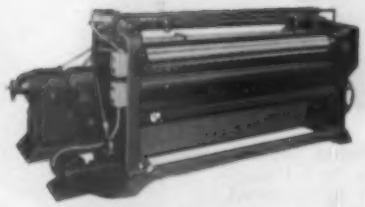
1. Utmost care should be exercised in selecting trainees. Careful consideration should be given to presently employed personnel, both in the plant and in the office. Superintendents, plant managers, and department heads should be asked to evaluate their employees with great care and make recommendations as to those worthy of receiving training.
2. In addition to presently employed personnel, new men should, from time to time be enrolled in the training program. All new men should be selected with extreme care and should be selected on the basis of previous training and experience, and the needs of the Company.
3. All persons should be given aptitude tests or any other types of tests which would be useful in determining the course a trainee should pursue.

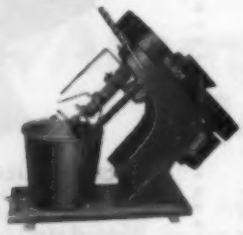
D. *Length of Training*

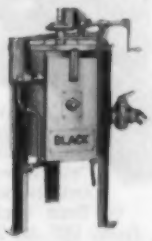
1. The length of time required to train each man will vary according to his previous training, ability, aptitude, and objective

(Continued on page 46)

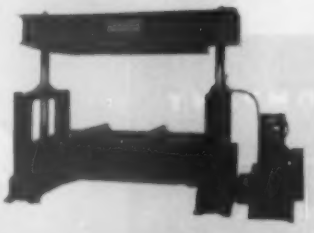
BLACK'S COMPLETE LINE OF.....







GLUE SPREADERS • MIXERS • HEATERS



COLD PRESSES • CLAMPS

Illustrated here are but a few of the more popular items in the Black Brothers Line of *Laminating and Gluing Equipment.* Whether you require small hand-operated bench equipment, or huge, high-production spreaders and presses, Black's can furnish your needs. Over 70 years of engineering experience is behind Black Brothers internationally recognized superiority in gluing and laminating equipment. Write for your free copy of Black's Catalog No. 11 today.

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THE BLACK BROTHERS COMPANY, INC.

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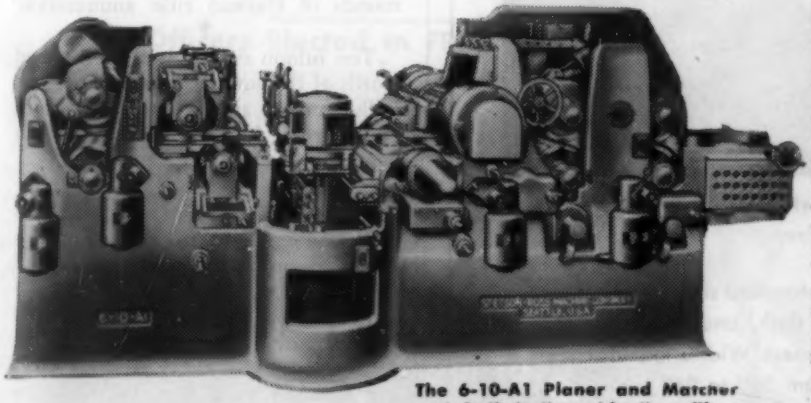
STETSON-ROSS MATCHERS GIVE PROFITS ON ALL WE PRODUCE, WHETHER CEDAR, HEMLOCK, OR SITKA SPRUCE
NORTHERN PINES AND HARDWOODS MUST BE MILLED WITH PRECISION; SO THE STETSON-ROSS MATCHER IS OUR DECISION.
OUR STETSON-ROSS WINS TOPMOST BILLING, FOR HIGH PRODUCTION AND PRECISION MILLING
WHETHER ON SOUTHERN HARDWOOD, OR SOUTHERN PINE, WITH A STETSON-ROSS MATCHER, RESULTS ARE FINE
STETSON-ROSS IS ALWAYS OUR FIRST CHOICE, SIR, FOR FINISHING REDWOOD PONDEROSA PINE AND FIR
NUESTROS ASERRADEROS DE MADERA QUE SON LOS MÁS MODERNOS DE MÉXICO USAN LA CEPILLADORA y MACHIHEMBRADORA STETSON-ROSS POR LA GRAN PRODUCCIÓN y LA CALIDAD MAXIMA.

Seattle-Built Machines Speed up Lumber Production



The 6-10-A1 Planer and Matcher with built-in "cartridge" prefilers

WHEREVER you find quality lumber being produced in high volume, and at lowest cost, you will find Stetson-Ross Planers and Matchers at work.

More than 40 years of engineering experience in serving the vast Pacific Coast *high production* lumbering region has enabled Stetson-Ross to perfect the many planer-matcher improvements now used in its machines for planing all species of lumber.

Today in all of the major lumbering areas of the United States as well as in Canada, Alaska, Mexico, the Hawaiian Islands and the Philippines you will find modern Stetson-Ross equipment milling all species of hard and softwoods.

Still setting the pace in 1951, Stetson-Ross Planers continue to offer "years ahead" features which produce more lumber at less cost.

To all dollar-wise millmen throughout the lumber world we suggest: benefit by the engineered advantages found only in Stetson-Ross Planers and Matchers.

Stetson-Ross manufactures a complete family of planing mill machines:

1. **Planers and Matchers**
2. **Automatic Feeding Tables**
3. **Random Length Trimmers**
4. **Bundle Trimmers**
5. **Moulders**
6. **Timber Sizers**
7. **Tilting Unloader Hoists**
8. **Tilting Reloader Hoists**
9. **Rapid Cutoff Saws**
10. **Cutterhead Grinders and Jointers**
11. **End Matchers**

You are invited to request information on any of these machines

STETSON-ROSS MACHINE COMPANY
SEATTLE 4, WASHINGTON

Export Division, 301 Clay St., San Francisco 11, California

(Continued from page 44)

to which he aspires.

2. Trainees without a background of specialized training in the field in which he wishes to specialize will be given the basic training as outlined in all cases.

E. *Progress Reports*

1. All trainees will be observed carefully and merit-rated by his immediate supervisor and superintendent at the end of each three months for the first twelve months, and at the end of each six months thereafter.
2. The trainee shall be informed of any unsatisfactory rating and given special assignments, if possible, to help him overcome such deficiencies.
3. If at the end of a reasonable time it appears that the trainee does not possess the necessary qualifications to continue his formed and his training termiprogram, he shall be so innated.

Conclusion

In consideration of the above plan it must be remembered that every plan must be tailored to fit the individual company for which it is intended. No training program for one company could be adopted by another company without careful study on the part of those responsible for such a program.

Men and Machines make

Permawood
HARDWOOD PLYWOOD

While Darlington Veneer Co.'s plant is highly mechanized, we still depend upon the judgement of interested supervisors and the skill of loyal workers to make the fine product we offer you as PERMAWOOD Hardwood Plywood.

One of Darlington's cutting rooms, where freshly cut veneer is carefully sorted and clipped to panel size.

We make PERMAWOOD panels in standard sizes, in all veneer construction from 3/20" to 1-1/16" thick, and in lumber core construction in 3/4" and 13/16" thickness. Widths manufactured are from 30" to 48"; and lengths from 36" to 96".

Write for latest stock lists and prices.

DARLINGTON VENEER CO., INC.

Established and in continuous operation since 1918

Darlington, South Carolina

Wood

You believe it?

Joe Rainwater, who lives in Newport, Oregon, owns the Sky Juice Lumber Co.

?

Wane within the limits likely to be permitted by other considerations has a comparatively small effect on strength.

?

America's first commercial sawmill began operations at Berwick, Maine in 1631.

?

The "peavey," one of the most useful of logging tools, was invented in 1858 by Joseph Peavey, a Stillwater, Maine, blacksmith.

?

The large dimensioned long timbers of Douglas fir have been exported to nearly every country in the world for heavy construction of all kinds.

?

In 1950 more Mahogany was imported and used in the United States than any year in our history.

?

One cord of pulpwood is required to produce the powder for 90,000 rounds of Garand rifle ammunition.

?

Ten billion dollars is the estimated worth of the lumber industry's plants, mills, forests and equipment. That's equal to a $12,500 investment for every lumber industry employee.

?

A 150-year old saw and grist mill at Burrville, New York, is still operating today producing lumber and cider.

?

Forty years ago railroads considered treated ties a good investment with fifteen-years life; today they are looking forward to a forty-year life for their treated ties.

?

Forest fires consume 14 percent of wood growth in Southern forests each year, exceeding the total amount cut for pulpwood.

START THE NEW YEAR RIGHT SUBSCRIBE TO WOOD/WOOD PRODUCTS . . . . 1 YEAR $2

FOREST PRODUCTS RESEARCH SOCIETY

F.P.R.S. Monthly Bulletin

Research • *Development* • *Production* • *Utilization* • *Distribution*

by FRANK J. ROVSEK, Executive Secretary, P. O. BOX 2010, UNIV. STA., MADISON 5, WISC., JANUARY, 1952

First Annual Meeting Of Upper Mississippi Valley Section Attracts 100 At U Of Minnesota

ST. PAUL, MINN., NOV. 30—Excellent papers plus clock-work timing under the direction of Program Chairman, *Arthur Lahey*, Weyerhaeuser Sales Co., St. Paul, got this newer FPRS Section off to an enthusiastic start here at Green Hall, School of Forestry, on the campus of the University of Minnesota.

Opening the business meeting National Secretary *Frank J. Rovsek* reviewed the program and benefits of membership in FPRS, and seated the new officers. Elected were: Chairman, *Thure Duvall*, Manager, Development Dept., Wood Conversion Co., Cloquet, Minnesota; Vice-Chairman, *W. D. Connor*, Director of Sales, Connor Lumber & Land Co., Marshfield, Wisconsin; Secretary, *Arne K. Kemp*, U of Minnesota; Treasurer, *Howard Olson*, Chapman Chemical Co., Minneapolis office.

A new method of "Lumber Packaging" was discussed by *James E. Stewart*, General Supt., Stewart Lumber Co., Minneapolis. He stated that an

(Continued on page 51)

Ohio Valley Wood Industries Men Meet To Form New FPRS Section

LOUISVILLE, KY. NOV. 20—Ten members from industry met with FPRS national secretary *Frank J. Rovsek* to take steps toward establishing the twelfth section in the FPRS organization. *Harold C. Moser*, Gamble Bros., Louisville, presided at the pre-organization meeting, assisted by *Phillip Hayward*, Hardwood Dimension Mfgrs. Assn. Louisville. Others in attendance included *Carl Trinkle*, the Baldwin Co., Cincinnati, *Burton F. Swain*, National Veneer Co., Seymour, Ind., *Richard L. Burkhart*, Swain Industries, Seymour *Ralph K. Day*, Central States Forest Experiment Station, Columbus, *A. L. Webster*, Mitchell Veneer Corp. Greensburg, Ind., *J. R. Kershner*, Serge A. Birn Co., Louisville, *R. K. Stem*, Chester B. Stem, Inc., New Albany, Ind., and *Sid Anderson*, Anderson Wood Working Co., Louisville.

Moser outlined the diversity of

(Continued on page 51)

New Officers Elected in FPRS Deep South Section

Photo by Jack Barham

AMONG THE NEW OFFICERS and Trustees installed at Shreveport, La., November 23, were, l. to r. Trustee, Paul R. Kramer, Texas Forest Service; Chairman, Richard F. West, Louisiana State University; Trustee, J. F. Haskins, The Borden Co.; and Secretary-Treasurer, Richard K. Speairs, Jr., Centenary College.

200 Attend FPRS Northwest Meet On Hardboard

LONGVIEW, WASH., NOV. 14—A panel of industry representatives discussing the need for establishment of specifications and methods of testing hardboard met before 175 members and guests here at the FPRS Pacific Northwest meeting. Sessions were held at the Junior College and the Monticello Hotel. Over 250 were present at the luncheon which was co-sponsored by the Longview Rotary Club. High interest in the subject moved the assembly to vote unanimously to continue the discussion at the next meeting of the Section in spring of 1952.

The technical session was opened with a paper, "Recent Developments in Masking Overlays", by *J. S. Barton*, Chief, Paper Products, Development Section, Crown Zellerbach Corporation, Camas, Washington. The production of masking overlays for plywood is increasing and will continue to do so significantly, forced by problems of raw material availability, said Barton. In 1949 one-half of one percent of total plywood production was manufactured with overlays. This grew to one and one-half percent in 1950. Barton discussed the paper-plastic type of overlay, although he mentioned that overlays can be of metal, plastics, veneers and most recently, hardboard. Among outlets for overlays are exterior siding and all-plywood transport vehicles. Panels prepared with overlays of this type have high check resistance, as shown in accelerated aging tests.

The panel of experts discussed relationship of properties and specifications of hardboard to use. Available standards for hardboard are published by the government and by A.S.T.M. They are not too current, however, dating back to 1940 and 1942.

W. J. Runckel, Oregon Lumber Co., emphasized need for standards on paintability and dimensional stability. In the case of the former, over 80 percent of board is eventually painted. Most boards have surfaces not well suited for paint or other surface-seal-

(Continued on page 50)

Eleven Timely Wood Subjects Discussed At Recent Deep South Section Meet

SHREVEPORT, LA., NOV. 23-24—Eleven subjects of interest to southern foresters and wood technologists were on the program as FPRS' Deep South Section met at the Washington-Youree Hotel for a two-day conclave. The full program included election of new officers for the 1952 term, joint luncheon with the Shreveport Rotary Club, a banquet meeting, and football game. Official host for the meeting was the A. J. Hodges Industries, and their past-chairman of the Section, *Charles H. Jeter.*

Among guest speakers were, *Lt. Gen. Troy H. Middleton,* President of Louisiana State University, who discussed "The Relation of College and University Training to the Forest Products Industry", *Joseph J. Mickle,* President of Centenary College, and FPRS President, *Roy M. Carter* of North Carolina State.

New officers elected included: Chairman, *Richard F.* West, Asst. Prof., Louisiana State University; Trustees for 1951-53 term, *George C. Lucas,* May Bros., Garden City, La.; *J. F. Haskins,* The Borden Co., Jackson Miss.; and *Paul R. Kramer,* Texas Forest Service, Lufkin, Texas. Re-elected were, Vice Chairman, *W. Jeter Eason,* Nickey Bros., Memphis, and Secretary-Treasurer, *Richard K. Speairs, Jr.,* Associate Prof., Centenary College, Shreveport.

Chairman of the opening technical session was *R. D. Carpenter,* U. S. Forest Utilization Service, Southern Station, New Orleans. The paper of *Dr. Bruce Zobel* is reviewed in the "Abstract" section. *Scott McWilliams,* Union Producing Co., Monroe, La. spoke on "Utilization of Bitter Pecan for Baseball Bats". In "New Trends in Panel Gluing" *J. F. Haskins* described applications for such glues as low solids Urea Formaldehyde Resin, Catalysts, glues for Tapeless Splicing, and for Core Stock Edges; Craze-resistant, Room and Low Temperature Curing, Fortified Urea, Phenol, Powdered and new glues for wood waste applications. Bulk storage handling is more economical than drum shipment.

In "Modified Method for the Preservative Treatment of Southern Pine Fence Posts", *R. F. West* concludes from research conducted at LSU that post requirements have increased, that pressure-treated posts have not been generally available to farmers, high labor costs emphasize service life as affecting replacements, durable woods

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F.P.R.S. Sections

PACIFIC NORTHWEST MEET

(Continued from page 49)

ing materials. The deficiency is inherent to the nature of the raw material in the board. In regard to stability, the Federal specifications water soak test does not always tie in with dimensional stability or swelling of products. Runckel recommends modification and use of Western Pine Association Swellograph.

T. Roubicek and *E. Wellwood* of Canadian Forest Products, Ltd. discussed testing methods as applied to the wet process, concluding that, 1) hardboard standards should be controlled by testing methods which should be set according to minute details in order to secure accurate comparative results. 2) data should be presented to the public, architect, engineer and building inspector in such a way to be useful and to provide assurance of a quality wood product. They recommend tests for density (wt. per 1000 sq. ft.), fire resistance, nail pull, modulus of rupture (evenly distributed load for one sq. ft. over a span of 16 inches), cold soaking (water absorption) and hardness (resistance of indenture). Results of paint tests indicated: 1) No advantage in painting all sides. 2) Standard system of painting; i.e., application of regular coats of paint, is superior to substitution of clear sealer or mixture of sealer and paint. Pigment seems to do the job. 3) Appears to be wide variance in effectiveness of certain brands of clear sealers and of water repellents in ability to protect surface of hardboard exposed to weather.

O. W. Frost of the Forest Fiber Products Co. confined his comments to tests and specifications relating to industrial fabrication of hardboard. He said, to date industry has had to depend on actual use test of each board. If someone would devise and correlate lab physical tests with actual performance on machines, we might more easily specify hardboard properties. Among preliminary tests which should indicate machining properties are: sawing, drilling, die-cutting, routing or shaping and machine bending.

Robert Williams of the American-Marietta Co. discussed the effect of resin on hardboard properties. Resin must be properly distributed. Influence of fiber moisture content upon flow of resin with heat and pressure is so great that fibers entering press at 20 percent moisture require a different resin than fibers at 30 or 40 percent. Resin adds strength to the board. It also helps produce greater dimensional stability and has a degree of sizing ability.

J. R. Roberts, Development Section, Weyerhaeuser Timber Co., spoke on "Silvacel Markets and Uses". Silvacel is made from mill left-overs and logging culls using any Western species. The process calls for chipping, screening, hogging, defiberizing, option of chemical additives, and fiber classification. End products range from whole wood fiber with no chemical treatment or additives, in various classes of fineness, to chemically treated fiber and mixtures. Principal uses for the many combinations include: diesel fuel filter stock, linoleum felt base, roofing felt, saturating sheets, automotive felts, gaskets and oil filters, and many others, including molded products.

Paul M. Dunn, Dean, School of Forestry, Oregon State College, presented the Luncheon address, "Wood-Sugar Molasses as a Carbohydrate Supplement in the Diet of Livestock and Poultry". In summarizing a range of tests conducted at this laboratory on livestock and poultry, Dunn stated that it was evident that the wood sugar molasses made from Douglas fir can be substituted in the animal ration to a certain extent. The molasses is palatable, results in greater consumption of rougher feeds permitting wider utilization of some types of feed. There should be savings in cost as well as a means of utilizing woods and mill wastes, pointing to a new industry for the region. Estimated costs of $13.50 to $16.60 per ton without sales overhead is expected to be competitive with other feeds. Data are from plants costing $300- to $400,000 to produce 50 tons per day, and $100,000 plant to make 20 tons. Yields of waste wood are one ton of molasses to one ton of waste.

Guest speaker at the evening banquet was *B. V. Hancock,* Executive Vice President, Cascades Plywood Corporation, who spoke on "The Marketing of Hardboard". FPRS Vice President, *R. D. Pauley* of Weyerhaeuser Timber Co. and Northwest Regional Board member, *Fred Armbruster,* Dow Chemical Co., were also in attendance. *A. C. Knauss,* Section chairman of the National Membership committee, initiated a program of obtaining additional new members in the Section, and with his committee plans to make written invitation to non-members to join the Society.

PAST NATIONAL PRESIDENT Dr. E. G. Locke congratulates new Upper Mississippi Valley Section Chairman, Thure C. Duvall, as Treasure, Howard Olson, and Secretary, Arne Kemp, look on approvingly.

ON THE PROGRAM at U. of Minnesota were, l. to r., M. C. Neel, Rilco Laminated Products, Chairman Art Lahey, Weyerhaeuser, Drs. J. A. Hall, U.S.F.P.L., and F. J. Kaufert, U. of Minnesota, and James Stewart, Stewart Lumber Co.

UPPER MISSISSIPPI MEET

(Continued from page 49)

estimated 65 percent of lumber going to wholesalers and retailers was being stored out of doors, subject to checks, cracks, warpage, stain. The means of protection thus far tried, such as wrapping in sisal type paper, tarpaulins, etc. have not been entirely satisfactory. For several years his organization has been working on a coating compound applied by dipping "units" of lumber. This is available in two types, a strippable compound which is reusable and a non-strippable coating. The coating forms a moisture vapor barrier throughout the package. Including the steel strapping, cost is estimated between $1 and $1.25 per M bd. ft.

Dr. Frank Kaufert, Director, School of Forestry, U of Minnesota, reviewed the status of that state's forest products industries (see Abstracts). Opening the afternoon session, *C. E. Lund* and *M. L. Erickson* of the U of Minnesota discussed "The Effect of Condensation in Houses on the Performance of Building Materials." Condensation is the result of moisture migration through walls and ceilings. The conclusion drawn from prolonged research is that a vapor barrier, usually a duplex laminated paper with an asphalt coating between laminations, or an asphalt saturated, glazed surface paper, applied on the inner or warm side of the framework provides necessary protection against condensation. A barrier on the outside wall may prevent paint blisters but also encourages interior condensation. Adequate vapor barrier in ceilings may eliminate the necessity of attic ventilation.

Earl Swanson, Anderson Corp., Bayport, Minn. discussed "Developments in Use of Lumber in Window Manufacture." He mentioned his firm's pioneering in chemical treatment of woodwork which began in 1937. Since then, he stated, they have not received any report of decay or damage by insects following this treatment.

M. C. Neel, Rilco Laminated Products, St. Paul, reviewed some of the problems and processes of the glued laminated lumber industry. Among advantages are, fact that they can use dry lumber, eliminating checking and warpage. Also that the process permits lamination of end products in any size, shape or curvature within realm of shipping possibility.

Dr. E. G. Locke, past FPRS President, and *Robert Hiller,* Chairman, 1952 National Meeting Milwaukee Arrangements, spoke briefly. A highlight of the day was the visit through the U of Minnesota Forest Products Exhibits at Green Hall, said to be the most complete of its kind among U. S. colleges.

OHIO VALLEY MEETING

(Continued from page 49)

wood industries in the area envisioned for the section, and stated that this was the principal remaining wood center not represented in the Society as a section. The section boundaries include all of Kentucky and Southern Indiana and Ohio south of an east-west line drawn directly north of Indianapolis-Columbus.

The members present voted unanimously in favor of petitioning for a Section. The Committee will now obtain 25 signatures of interested persons in the area and submit these, along with a proposed model of Bylaws to the national organization for approval. If approved, the group plans to hold the first full-scale section meeting and election of officers in the Spring. Temporary Chairman and Committees were appointed. Chairman, R. K. Stem; Bylaws, P. Hayward; General Meeting Arrangements, Serge Birn; Program, H. Moser; Nominating Committee, R. K. Day; Membership, R. Burkhart.

DEEP SOUTH MEETING

(Continued from page 50)

are less available for use as untreated posts, cold-soaking process is widely used, with unsatisfactory depth of penetration. He adds that low pressure short time treatment is feasible for Southern pine and that variables in pressure used have more influences on retention and penetration than difference in length of treating periods.

Ralph Taggart, V. P., Crosby Lumber and Mfg. Co., Crosby, Miss., reported on the Anders-Crosby Mobile Sawmill. He said modern management is being called on to operate smaller stands with low sawlog volume per acre. To meet this requirement the subject mill contains, in one unit, means for sawing logs, edging lumber and traveling from one set to another all under its own power unit. The author's company has used five units for a year in their operations finding that the mill performs selective cutting in stands ordinarily sub-marginal.

A. C. McIntyre's report on "Wood Chips and Chippers", will appear under future Abstracts.

The second technical session was under the direction of *Moss B. Christian,* Director of Research, Chicago Mill & Lumber Co., Tallulah, La. The first two papers in the session are to be reported under later Abstracts. *Dr. H. R. Johnston,* USDA, spoke on "Practical Method for Control of Insects Attacking Green Logs and Lumber". *Dr. R. J. Kowal* discussed problems relating to the Southern Pine Beetle and Turpentine Beetle.

L. Spiwak, Snyder Chemical Corp., Bethel, Conn., and *George W. Stanley,* Pressed Steel Car Co., Chicago, presented a joint paper on "Recent Developments in Laminated Freight Cars and Trailers". The Unicel all-plywood freight car has recently undergone tests by the Association of American

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Abstracts

Minnesota's Forest and Forest Products Industries

Dr. Frank H. Kaufert

FPRS Upper Mississippi Valley Meeting, November 30, 1951

Minnesota's forest still provide the raw materials for primary wood using industries whose products were estimated to be worth $138,000,000 in 1950. In addition to the wood using industries dependent on Minnesota for wood supplies, there are numerous industries, such as manufacturers of sash and doors, millwork, furniture, boxes, etc., that use largely imported wood. Over 900 retail lumber yards further increase the size of the Minnesota wood industries.

We are now growing more wood than we are cutting. However, we are seriously overcutting our spruce, jack pine, white pine and red pine and are not cutting enough aspen, low quality hardwoods and balsam fir. The forestry problems involved in correcting this situation need more concerted attention than they have received. The problem of utilizing more aspen and low quality hardwoods is equally important. Unless we can develop added uses for these woods, a large part of the amount now grown will be wasted and we will continue to overcut and exhaust our more valuable spruce and pines. At present Minnesota supplies only about one-fourth of its lumber needs, but we are exporters of pulpwood. By husbanding more valuable species, utilizing more low quality aspen and other hardwoods, and speeding up forestry development, the forest products industries should become more significant in our economy. At present they are the 4th largest in the State, ranking behind food, construction and mining.

DEEP SOUTH MEETING

(Continued from page 51)

Railroads. It is now in assembly-line production at the rate of 15 per month. Sixty-five units are on order for Saudi-Arabia. Maximum capacity will be 50 per day. Data, road tests, etc. concerning the new Unicel Truck Trailer were also reported. This unit was introduced in October to the trucking industry. Pressed Steel is now set up to produce 25 such trailers daily at a price said to be competitive with conventional trailers.

Genetic Approach for Improving Wood Qualities of Southern Pines

Dr. Bruce J. Zobel,

FPRS DEEP SOUTH MEET, NOV. 23

The genetic approach to tree improvement is relatively new, with progress in the field being at about the same stage as that of crop genetics ten to twenty years ago. Although many of the problems are similar to crop genetics, there are also a large number of problems unique to forest genetics, which must be overcome before any great advances are made.

Gross wood characters such as those controlled by tree form, limb form, natural pruning and rate of growth can definitely be improved genetically by means of selection and hybridization. Internal wood characters involving fiber length, angle, etc. are more untested, but circumstantial evidence points to the possibility of their improvement by genetic manipulation. Dr. Zobel concludes that at the present stage of genetic research, projects geared specifically at improving wood qualities must be approached cautiously. Future importance of this type of research will be dependent on improvement of techniques and a greater knowledge of the basic genetics involved.

Recent Investigations on Avoidance of Decay in Exterior Woodwork

Arthur F. Verrall,

FPRS DEEP SOUTH MEET, NOV. 23

Recent investigations show that extensive decay of siding usually requires fungus infections prior to construction. With the increased water absorbency and the presence of a decay fungus, infection is sure to exist after construction. In addition to the use of fungus-free lumber, certain structural designs reduce the danger of water accumulations in siding. These are: (1) good roof overhang or at least eaves gutters, (2) with drop siding, the placing of trim over the siding ends, (3) designs that prevent runoff from striking siding or splashing up against siding from porches, etc., and, (4) the use of breathing papers or no paper directly under siding.

Steps, porches, and similar structures of high decay hazard cannot be sufficiently protected by design if made of sapwood, but require preservative treatment. Commercially impregnated wood is best, but worthwhile protection results from on-the-job applications of non-swelling, paintable preservatives. Mr. Verrall concludes, however, that on-the-job treatments should not be used instead of good design; both are needed.

Research Publications

The following publications are reported as being currently available, without charge, from the U. S. Forest Products Laboratory, Madison 5, Wisconsin.

No. D1766-6—*Veneer Cutting and Drying Properties—Hickory.* September 1951. One of a series dealing with selection, handling, and preparation of logs for cutting, veneer cutting, veneer drying, veneer yields, and gluability, for the title species.

No. D1809-A—*Effects of Defects on Strength of Aircraft Type Sandwich Panels* by A. A. Mohaupt and B. G. Heebink. November 1951. One of a series issued in cooperation with the Army-Naval-Civil Committee on Aircraft Design Criteria under the auspices of the Munitions Board.

Three types of sandwich construction were involved—glass cloth facings on balsa cores, aluminum facings on glass-cloth cores, and glass cloth facings on glass cloth cores. Defects included inadequate bond, wrinkles, variation in facing thickness, and butt joints and folds in facings. Effects on flatwise tensile strength edgewise compressive strength, longitudinal tensile strength, and bending were observed.

No. R1908—*Natural Wood Finishes for Exteriors of Houses* by F. L. Browne. October 1951. Describes the application of oils, sealers, and varnishes and outlines realistically the careful and extensive maintenance that is entailed in the use of the increasingly popular natural finish.

Reprint. *Safe Stacking Life of Corrugated Boxes* by K. Q. Kellicut and E. F. Landt. Fibre Containers, September 1951. Fiber containers have, in some instances, caused concern to warehousemen by unpredictable toppling in storage. The results reported indicate trends and relationships between the machine-compression-test value of boxes, the magnitude of the dead load of storage, and the duration of loading.

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CAVALIER MILL

(Continued from page 31)

gang. The long lower section of the conveyor, which serves both mills, can be stopped by means of a clutch for convenience of the men working at the circular mill and on the log decks. This clutch is shown in Fig. 8.

We first planned to disengage the jaw clutch by sheer manpower, but this proved too much for anyone smaller than a giant; so the next step was to install an exceedingly powerful air cylinder which you can see in the picture. The air cylinder soon bent the clutch operating lever into a graceful curve, whereupon we replaced the lever with a truly gigantic one, and finally arrived at a result which would stand up under operating conditions. We have an air cylinder strong enough to lift an elephant operating on a lever which would almost move a battleship. Our only defense for this kind of engineering is that it works.

The next picture (Fig. 9.) is a close-up view of the carriage which feeds the gang mill. The problem in starting any log through a gang saw is to reach the back hold-down rolls of the gang before the log flies through the roof. Long logs are easy to handle because of their weight, but with the kind of short stuff we have to saw it is necessary to get a real death grip on the tail end of the log as you start it through the mill. Our carriage is equipped with a set of jaws and another air cylinder of fairly tremendous size. This carriage is a makeshift. We had a much better one which was far more scientific in every respect, but it didn't work. In other words we suffered again from too much engineering. The present rig was more or less worked out on the job and pays its way in spite of its rather haphazard appearance.

Our gang saw is a Heaps 1818 gang with hydraulic feed works. It was originally installed with a cutterhead in front of the mill to flatten the lower surfaces of the logs, but this cutter was dangerous; and while it worked fairly well for straight logs, it was useless on very crooked ones.

Avoiding Twisting

We have found out how to keep our logs from twisting. The outfeed rolls of our mill are equipped with saw steel discs which fit accurately in the kerfs produced by the gang. This arrangement has proved entirely satisfactory. The lumber from the gang mill drops out of a chute and is carried out on a green chain and is loaded into carts. This conveyor is shown in Fig. 10.

A view from underneath the mill (Fig. 11.) shows the same sawdust conveyor which runs through a tunnel in the concrete foundation of the gang saw. Sawdust and small pieces of slab and bark are carried by this conveyor over a screened blowpipe inlet or suction box. The sawdust is drawn away beneath the conveyor and the larger refuse is dumped out at the end. This is one of the few things we put in which worked well from the beginning, and we would recommend a similar arrangement on any new gang saw installation. The problem of handling sawdust is always larger than you expect. Even our small mill will produce as much as 2000 pounds of dust an hour.

To Be Continued

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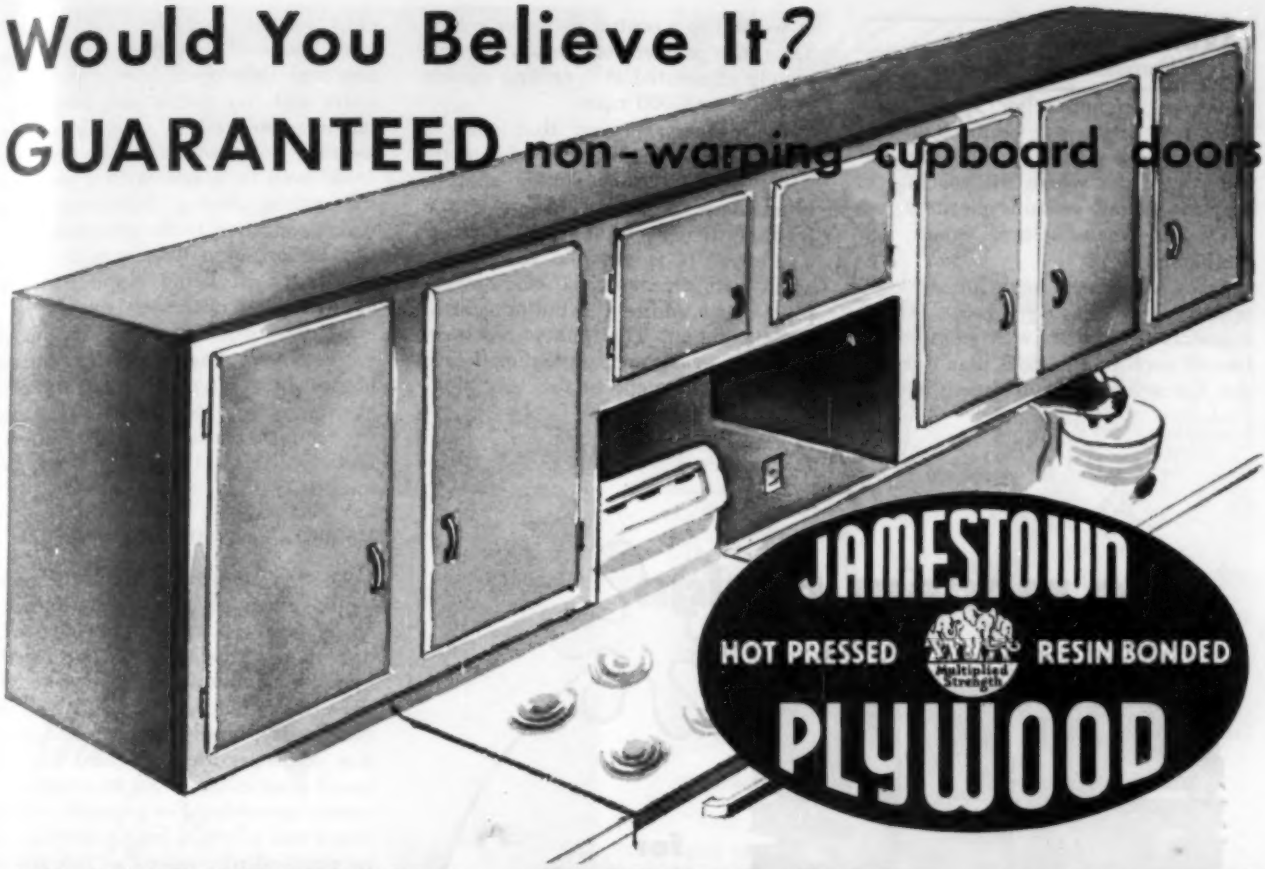

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CARBIDE SAWS

(Continued from page 29)

jamming. Higher arbor speed presents few obstacles. Controlling the material immediately in the area of the saw blades where the spacing of the saw blades remains constant, as in flooring manufacture, would not be difficult.

Saws have been made in sections, tipped with tungsten carbide. These segments or sections were completely free of each in the axial plane at the rim, the several sections being riveted or welded to a central flange or collar. Thus, the problem of tension is completely eliminated at operating speeds of 5,500 to 8,000 r.p.m.

It has been proven that such a saw running at the higher speeds made possible by tungsten carbide offers a tremendous resistance to any force tending to deflect the rim sideways. Therefore, it is possible to provide a saw with a pronounced side cutting function, in addition to the peripheral cutting action. This has never been practical in a thin, conventional tensioned saw, except in the very light chip loaded, negative angle, tooth glue line saw described above. This saw was developed over a period of years and has performed very satisfactorily on various operations. The solution to many sawing problems could well be a saw with a powerful side cutting-planing characteristic that will, in addition to the peripheral cutting action, actually plane the edges of the board being ripped without any deflection of the saw rim.

At these super speeds, even though we retain or reasonably increase the highest prevailing feed rates, the chip loading of the teeth will be less, for the simple reason that many more teeth will pass through the cut per minute.

Velocity and Dulling

Dulling is accelerated by higher tooth velocity. However, far greater speed is practical with tungsten carbide than with solid steel, particularly in materials of low density, low tensile strength and devoid of abrasives. As the density, tensile strength and abrasive characteristics increase, the saw speed must come down to secure economic operation. For example, ebony board and asbestos base materials can be economically sawed at rim speeds up to 7,000 f.p.m. Above that tooth speed, dulling of the tooth occurs very rapidly. The material, now the saw, becomes the cutting agent.

Feed Control

Sooner or later, something is going to be done about jamming cut-off saws through the work as though it had to be "chopped" off, like swinging an axe. Feed control here would save a tremendous amount of lumber, eliminate tearing at no loss in production, produce less rejected material and lower tool maintenance costs. Even cottonwood can be end trimmed without tearing by using proper saw speed and feed control.

Feed control of double end tenoners is very well advanced. Very few double end trimmers have feed control. High saw tooth velocity is desirable with a nominal increase in feed rate. This would mean an increase in production rate, cutting to closer tolerances, and the near elimination of extra finishing operations.

In cut-off and end trimmer work, it has been conclusively proved that smoothness of cut in any wood or fibrous material is controlled primarily by tooth velocity (saw rim speed) and the number of teeth in the saw is strictly secondary, to be considered only in terms of sensible chip loading

(Continued on page 60)

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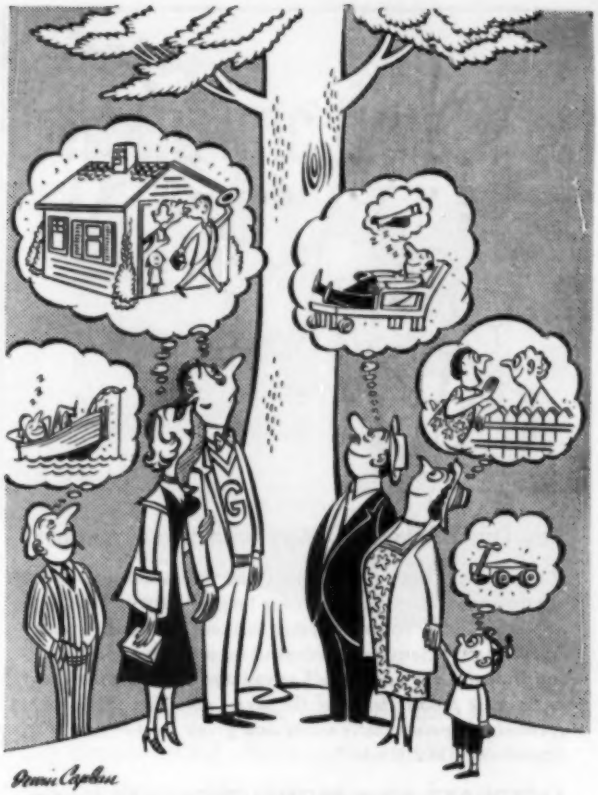

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TACOMA BUILDING, TACOMA 2, WASHINGTON
Warehouse stocks of
Plywood • Doors
Mouldings • Stock Millwork

WAREHOUSES IN 5 PRINCIPAL CITIES
- St. Paul 4, Minnesota
- Kansas City 5, Kansas
- Chicago 38, Illinois
- Baltimore 31, Maryland
- Elizabeth, New Jersey

You Can't Afford to Miss with Green Lumber!

With today's high operating costs and sky-high taxes, the extent of your plant's profits largely depends on how much you can increase your volume through greater operating efficiencies. Successful men in the woodworking industry are taking full advantage of *the quickest way to increase production and the surest way they can protect themselves against costly waste and green lumber rejects...* STANDARD DRY KILNS!

SAFEGUARD *YOUR* PROFITS, TOO! Let Standard remodel your old, natural draft installations or recommend the new kiln installation you need to increase your volume and eliminate losses.

ANOTHER STANDARD USER REPEATS! Mississippi Products, Inc. of Jackson recently ordered a new Standard dry kiln to accommodate their increasing business. This progressive firm has learned to depend on Standard's internal fan construction and automatic reversible cross recirculation to assure the quality-dried lumber they insist upon in the production of their fine cabinets.

WE SELL THE FIRST *Standard...*
Performance SELLS THE REPEATS!

Write for illustrated Standard Catalog

Manufacturers of Internal Fan Kilns

STANDARD
Engineers and Manufacturers Since 1927
DRY KILN COMPANY

P. O. BOX 5708 • INDIANAPOLIS, INDIANA

WOOD PUZZLERS ***Continued from page 14***

Hickory Discs—No. 24

I am interested in obtaining a quantity, running into thousands, of hickory discs, ¼-in. thick and from 3 to 3½ inches in diameter with the bark on, seasoned wood, to be stamped and used as an advertising medium. These may be plain wood or plastic coated and finished to make them water resistant. (N. Y.)

Compressed Birch Sawdust Roller—No. 25

We are interested in producing a small roller under the compressed birch sawdust method, which we understand is now being done successfully by other concerns. Any guidance in reference to the above will be greatly appreciated. (N. J.)

Duplicating Lathes—No. 26

A friend in Israel would like names of manufacturers of duplicating lathes and machines for wooden shoe nails. They desire literature, prices, delivery, etc., and all pertinent information. (Israel)

If you have any problem of wood utilization, or cannot find the kind of material or machine for your particular purpose, SEND IT IN to the editor and we will put it in the WOOD PUZZLERS section.

Look to Nickey Bros. Inc. For

PHILIPPINE MAHOGANY

Now available in

Lumber
Plywood
Bedrails
Glued-up Stock

We are experienced Importers of Philippine Mahogany by the shipload. Consult us today about your Philippine Mahogany needs.

NICKEY BROTHERS, INC.
MEMPHIS, TENNESSEE

Hardwood Flooring, Oak Treads,, Thresholds, Moldings, Cedar Closet Lining, Sliced and Face Veneers

PATENT DIGEST *Continued from page 19*

port, spaced saws mounted upon the saw shaft, means to drive the shaft, endless conveyors to advance the log into engagement with the saws, a conveyor drive shaft, a rotary element engaging each endless conveyor and slidably mounted upon the drive shaft to rotate therewith and held against longitudinal movement with relation to the conveyor drive shaft.

Wood Treatment

J. A. Nylund (to M and M Woodworking Co.) U. S. 2,570,588, Act. 9. Repairing defects in peeler logs by boring out said defects to form tapered holes and inserting grooved plugs of the same cutting action as the wood whereby slices of the plug in veneers appear as patches in the veneers.

Wood Fibers

A. Elmendorf. U. S. 2,570,926, Oct. 9. Vertical rotatable wheel-like member having thereon short radial slicing blades distributed along the periphery, an anvil means close to the paths of the cutting edges and means for carrying veneers to the cutter wheel.

Cashew Nut Shell Liquid

S. Caplan (to Harvel). U. S. 2,559,593-4, July 10. Removing nitrogenous and mineral components from cashew nut shell liquid by acid treatment and distillation of the liquid under reduced pressure.

Packing Cases

R. A. Muller (to Atlas Plywood Corp.). U. S. 2,558,874, July 3. Improved wire stitching machine for securing panels together to form collapsible packing cases.

Fuel Feeder

H. Kreisinger (to Combustion Engineering-Superheater, Inc.). U. S. 2,558,905, July 3. Feeder apparatus for burning wood refuse fuel.

Bunk Stake

J. S. Clifte. U. S. 2,559,007, July 3. A bunk and stake combination for logging trucks and railroad cars.

Carboy Crate

J. R. Wallace (to Carrier-Stephens Co.). U. S. 2,559,236, July 3. A laminated wooden carboy crate.

Wood Shaping

M. Martensson. U. S. 2,563,655, Aug. 7. A wood shaping machine including a frame, a work-supporting table, a cutter spindle, a guide collar, a guide member, a link mechanism connecting the guide to the frame and a hand wheel to actuate for accurate milling.

CARBIDE TIPPED SAW BLADES

with any others and you'll agree they're outstanding. Cut with equal ease thru plywood, laminated wood, teak, fireproof lumber, linoleum, plastics etc. Huther Quality in Carbide Saws is a "standard" among leading craftsmen.

Write for folder

HUTHER BROS. SAW MFG. CO., INC.
1290 University Ave. • Rochester 7, N. Y.
SAW MAKERS FOR OVER 65 YEARS

Where
does ATLANTIC LUMBER go?

The "Marblehead Room," a planned setting created of maple by W. F. Whitney Company, Inc.

Atlantic hardwoods can be made into beautifully proportioned charming furniture of true Colonial design like this successful suite, or you can convert it into some other product. Whatever you make, when you use Atlantic hardwoods, you can plan ahead with confidence. Atlantic hardwoods include ash, basswood, beech, birch, cypress, cherry, gumwood, maple, oak, sycamore, yellow poplar, and walnut.

Your Atlantic Man knows these hardwoods. He has had years of experience in your industry and can be of great help to you. His advice is yours. Be sure you get it.

THE ATLANTIC LUMBER CO.
88 BROAD STREET, BOSTON, 4, MASS.
1055 SENECA, BUFFALO 10, N. Y.

(Continued from page 56)

and ample gullet room. This fundamental mechanical law is not generally recognized and is seldom used when selecting the proper saw. Far less teeth in the saw, fitted with carbide tips ground to substantial points, running at the proper higher velocity, will cut smoother, longer and at a fraction of previous maintenance cost.

When a user decides to try a carbide tipped saw for the first time, on any job, *he should not* specify the diameter, number of teeth and gauge. The manufacturer should be given complete information about the kind of material to be cut, the sizes and particularly, the thickness. Other necessary information would include type of machine, arbor condition, arbor back flange accuracy, arbor speed, arbor size, *minimum and maximum diameter saw that could be used*, method of feeding and feed rates available if power fed. Leave the diameter, gauge, number of teeth and tooth design to the saw engineer. From a strictly theoretical and technical viewpoint, tipped saws may be used anywhere that any other kind of saw is being used.

TO BE CONTINUED

RESEARCH

(Continued from page 27)

skins and to provide the necessary shear resistance.

Status in 1951: Many thousands of houses are now being manufactured annually in the United States using the stressed skin principle.

A number of door manufacturers are now using the stressed skin principle for the manufacture of hollow doors.

South American manufacturers are converting short wood blocks into spiral-like shavings that fit in between two facing panels or skins of the door. The manufacture of all-plywood freight cars and truck trailers involving the stressed skin principle is now rapidly increasing.

12. Metal-Clad Plywood

Problem in 1920: To make a sandwich consisting of a plywood panel and two facing sheets of thin metal to produce a panel of much greater stiffness and surface hardness than can be obtained with plywood alone. The aim is to make a panel which has maximum flexural strength and stiffness per unit of weight and which can be subjected to adverse atmospheric conditions.

Status in 1951: Most modern roomette cars constructed for railways are provided with partitions made of metal-faced plywood. The doors and bulk heads between rooms are likewise made of this material.

13. Compounding Lumber

Problem in 1920: To assemble relatively short boards by laminating with adhesives to make long arches for buildings and boats.

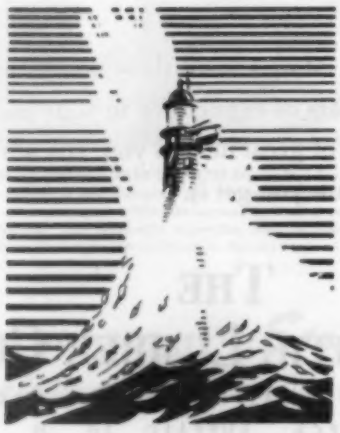
Status in 1951: The compounding of lumber in the manufacture of large laminated arches is now developing in the United States into a substantial industry.

14. Bark Utilization

Problem in 1920: To convert tree bark into commercially useful products.

Status in 1951: One large producer of forest products in the United States, has been conducting research work over a period of years aimed at the conversion of the bark of the Douglas fir tree into useful products. One of the more interesting applications of a bark derivative is its use as an additive to emulsion muds required in the drilling of oil wells.

DID YOU KNOW



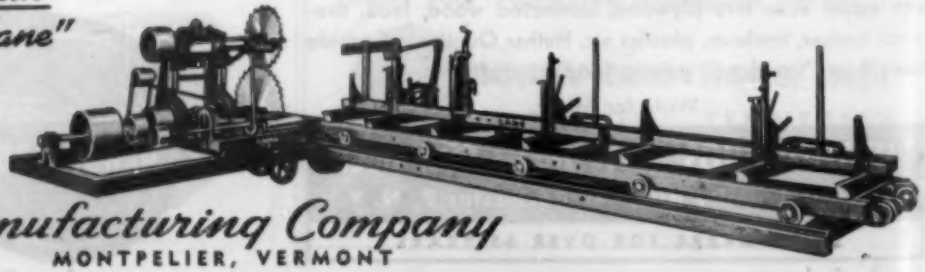
Minot's Ledge Light, off Boston Harbor, has never failed since 1860 to guide ships of all Nations with its 1-4-3 beacon, flashing from 85 feet above the sea. Terrific pounding of the waves that, in a gale, rise to 100 feet above the lighthouse, only serve to force the interlocked one ton granite blocks tighter together.

and did you know.....

LANE MILLS are built to stand the terrific strain on frame and carriage caused by everyday rough usage in any logging operation. The No. 2 Mill will take this constant wear and tear and produce 1500 to 2500 feet of lumber per hour with a minimum of "down time". Plan to replace old and worn equipment and "gain with Lane". The rugged dependability of Lane Mills means increased logging profits for you. Write for information today!

"You Gain with Lane"

LANE



Manufacturing Company

MONTPELIER, VERMONT

15. Sawdust and Shaving Utilization

Problem in 1920: To develop commercially useful products out of sawmill sawdust and shaving waste.

Status in 1951: The development of synthetic resins in recent years has made it possible to produce composite wood fiber boards using sawdust and shavings as the basic raw material. Two manufacturers of doors and kitchen cabinets in the Mississippi Valley are now using their waste sawdust and shavings for the manufacture of panels. Similar, but thicker boards of a somewhat coarser texture are also being made in a factory in New Hampshire and in several other similar operations in the country.

A substantial plant was recently completed in Northern California and is now in operation producing a thick slab equivalent to a European product now being extensively used in the manufacture of furniture.

Assuming that the national economy suffers no serious set back from war in the years immediately ahead, one may anticipate a further expansion and development of new forest products through research that may exceed in importance and value the results of the work done in the generation now being concluded. Research work of this kind requires considerable perseverance not only on the part of the technologists, but also on the part of their backers. Such pioneering has its just rewards as shown by the accomplishments described.

WOODICTIONARY

CROSSBAND

In the construction of plywood, to place the grain of alternate layers (usually) at right angles to the grain of faces, in order to more nearly equalize the strength in the two principal directions, and to minimize shrinking and swelling.

LUMBER BUYING

(Continued from page 33)

duly long on a rising market, in order to move newer orders entered at higher prices. Also, a regular source of supply on which dependence must be placed for steady shipments may be entitled to preference, at a higher price, over a seller who is low on an occasional car only. Likewise, the high bidder may be one who is constantly rendering a service in one form or another to the buyer; maybe his technical assistance in the proper utilization of lumber is valuable. There are many reasons why the lowest quotation is not always the best buy.

The author acknowledges, with appreciation, helpful suggestions from Ferd Hammes of Edw. Hines Lumber Company and Poul Sparso of The Pacific Lumber Company.

A subscription to WOOD combined with WOOD PRODUCTS is the best New Year's gift possible for profitable production. Order now—3 years $5. 139 N. Clark, Chicago 2, Ill.

BENEFITS YOU!

Automatic Humidification prevents excessive drying:

Controls moisture content, improves quality.
Eliminates warping, shrinking, checking.
Saves production time, cuts waste.

Bahnson Automatic Humidifiers will give you truly dependable, low cost humidification.

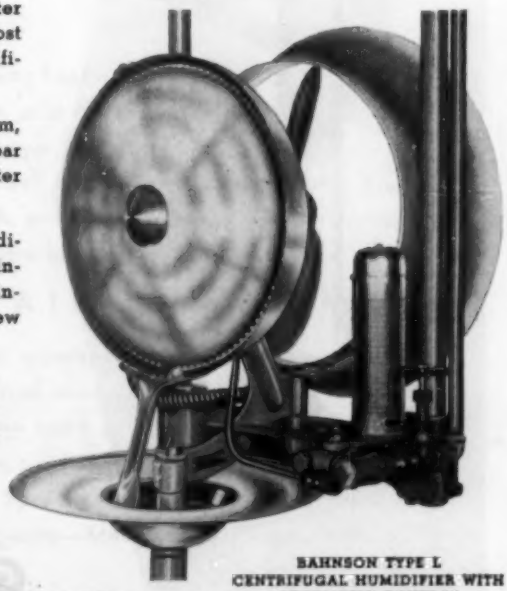
ECONOMY—Atomization of water by centrifugal force—the most economical method of humidification yet devised.

SIMPLICITY—Requires no steam, compressed air, or pumps. Year 'round humidification with water at city pressures.

FLEXIBILITY—Individual humidity control on unit requires no installation. Complete self-contained units easily relocated or new units added.

Learn WHY and WHERE

to control humidity. Send for our booklet "HUMIDITY CONTROL IN THE WOODWORKING INDUSTRY." It covers all phases of manufacturing, storage and finishing.



BAHNSON TYPE L CENTRIFUGAL HUMIDIFIER WITH AUTOMATIC CONTROL

Bahnson Company
ENGINEERS AND MANUFACTURERS
WINSTON-SALEM, N. C.

Names... Events

New Jobs

KAJ I. WINTHER, a new-comer to the American wood working industry, is President of the Fjellman & Winther Company, recently established in Joliet, Ill., to manufacture the well-known Fjellman hydraulic press. Mr. Winther, a native of Denmark, has been associated with the woodworking and processing industry for many years, both in this country and in Europe. He will direct the American merchandising and servicing affiliate of the Swedish parent firm.

ARTHUR J. KERR, Vice-President of the Rockwell Mfg. Co., Pittsburgh, Pa., has been appointed Director of the General Components Division, National Production Authority, U. S. Department of Commerce.

ROY C. GIBSON, General Superintendent of the Long-Bell Lumber Company's Vaughn Division at Eugene, Ore., has joined the M & M Wood Working Company's Albany, Ore. Plylock Division as logging manager.

FRANK DOMOTOR, a wood technologist of Palmerton, Pa., has joined the laboratory staff of the Timber Engineering Co., Washington, D. C.

G. L. BENSON was appointed building products salesman in the Philadelphia area for the Wood Conversion Co., St. Paul, Minn.

JERRY REILING becomes the District Manager for the HYSTER Co. in the Philadelphia–Baltimore territory.

SAMUEL P. OWEN has been appointed Advertising Manager of ROCKWELL TOOLS, INC., Columbus, Ohio.

BEN G. RHODES is named Central States Manager for AMERICAN FOREST PRODUCTS INDUSTRIES, Washington, D. C. His headquarters will be in the West Virginia Bldg., Huntington, W. Va.

DONALD V. ROBERTSON, biologist, has joined the laboratory staff of the TIMBER ENGINEERING CO., Washington, D. C.

OLIVER S. DEHAVEN has been appointed to re-assume the duties of Chief Engineer for the Vonnegut Moulder Corp., Indianapolis, Ind., after an absence of four years.

ARNOLD K. BROWN, Executive Vice-President and Director of the American Machine & Foundry Co., New York, N. Y., and President of the company's electronic subsidiary—the Transducer Corp. of Boston, Mass.—has been reelected a board member of the National Industrial Conference Board.

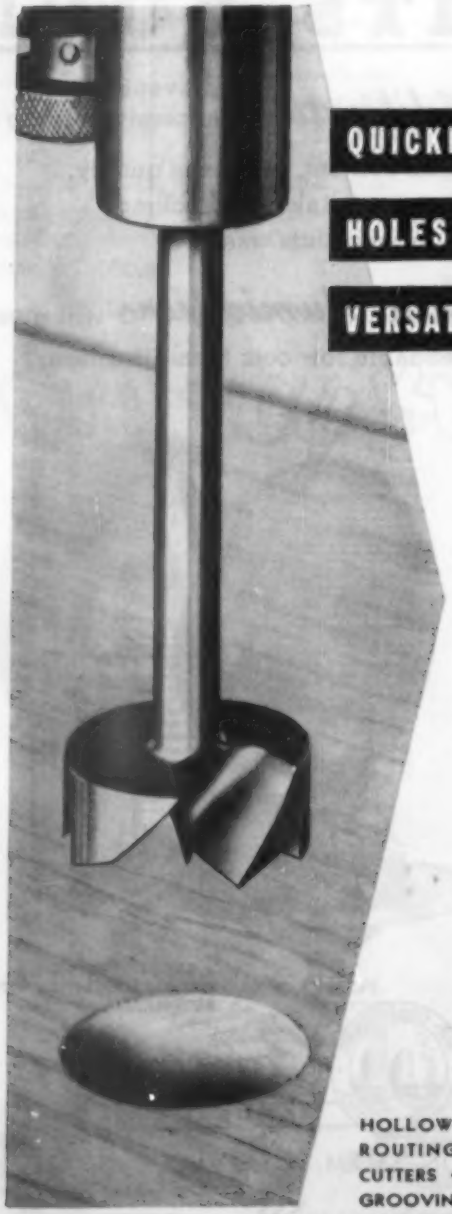
JOHN M. MEYER, Vice-President of the J. P. Morgan & Co., Inc., and G. WILLING PEPPER, Vice-President of the Scott Paper Co., have been elected directors of the United States Plywood Corp., New York, N. Y.

JAMES L. MADDEN, President of the Hollingsworth & Whitney Co., is the newly elected President of the American Forest Products Industries, Inc., Washington, D. C.

JUEL LEE, President and General Manager of the Birds Eye Veneer Co., Escanaba, Mich., has been elected President of the Escanaba National Bank.

PROFESSOR SVEND O. HEIBERG, head of the Department of Silviculture of the New York State College of Forestry, has been appointed as Walker Ames Professor of Forestry at the University of Washington. EUGENE C. STEINBRENNER is appointed to the Weyerhaeuser Fellowship in Forest Management, University of Washington.

B. W. WILD is appointed Assistant Works Manager of the Hamilton, Ohio



QUICKLY BORE SMOOTH HOLES UP TO 3" WITH THIS VERSATILE MULTI-SPUR BIT

A fast, smooth-boring bit for those special jobs beyond the scope of the usual machine bit. Bores any arc of a circle on an edge of a piece of stock. Operates well in either soft or hard woods and is often preferred for end-grain work. Smoothly bores veneered stock without tearing and will bore at an angle, overlapping, or at close centers without splitting stock. Stocked in sizes ½ to 3". Write for facts. Greenlee Tool Co., 2151 Herbert Avenue, Rockford, Illinois.

TOOLS FOR CRAFTSMEN
GREENLEE

HOLLOW CHISELS • MACHINE BITS • DRILLS
ROUTING BITS • MULTI-SPUR BITS • PLUG
CUTTERS • COUNTERSINKS • MAKERS OF TECO
GROOVING TOOLS FOR TIMBER CONSTRUCTIO'

plant of the Columbia Machinery and Engineering Corp.

THEODORE R. TREADWELL has been named Sales Manager of the Clover Manufacturing Co., Norwalk, Conn.

The NORTON Co., Worcester, Mass., recently made the following appointments; LORENZO S. WASHBURN was named quality manager of the Abrasive Division; RICHARD J. KERVICK was appointed abrasive engineer in West Virginia; KENNETH F. EBBESON was named abrasive engineer, covering Arkansas, western Tennessee, Mississippi and Louisiana; GILBERT H. GIDLEY became abrasive engineer in Chicago, Ill.

Promotions

J. P. FOLEY, Sales Manager of the Special Products Branch, Weyerhaeuser Timber Company, will headquarter out of the Weyerhaeuser Sales Company offices in the Chicago Daily News Building, Chicago, Ill. W. G. VAN BECKUM, Special Products Technical Service Manager and Assistant Sales Manager, will continue to maintain his headquarters at Longview, Wash.

The Plaskon Division of the LIBBY-OWENS-FORD-GLASS Co., Toledo, Ohio, announces the following personnel changes: CHARLES E. WALKER is named to head the newly-established office at 10 High St., Boston, Mass.; DONALD WYNOCKER goes to the Toledo office; H. A. RAYMOND, JR. is named Sales Manager of industrial resins; RALPH W. BURDESHAW becomes Southern Sales Manager for industrial resins and will remain and operate from Atlanta, Ga.; ROBERT D. WEANT will take over the territory formerly handled by Mr. Burdeshaw; DONALD DELANEY is promoted to Sales Manager and VICTOR W. GINSLER to Assistant Sales Manager for Coating Resins.

DeVILBISS Co., Toledo, Ohio, announces two personnel promotions, as follows: D. V. PERRY is named Assistant Sales Manager of the Spray Painting and Finishing Division; C. B. GRACELY is promoted to Eastern District Manager, working out of the company's branch in Newark, N. J.

CARSON L. RUYLE, a member of the sales division of the Gardner-Denver Co., Quincy, Ill., has been appointed Advertising Manager of the company.

ROBERT L. BONAPARTE has been appointed Sales Manager of the New York City distribution unit of the United States Plywood Corporation.

LACY STONE has been named General Manager of Daystrom Laminates, Inc., Elizabeth, N. J.

GEORGE WALKER was elected President of the Forrest City Furniture Mfg. Co., Forrest City, Ark.

C. PEYTON RAY, Executive Vice-President of Bentwood Products, Louisville, Ky., has been elected President of the company.

DR. J. O. HENDRICKS has been named for the newly-created post of

WOODICTIONARY

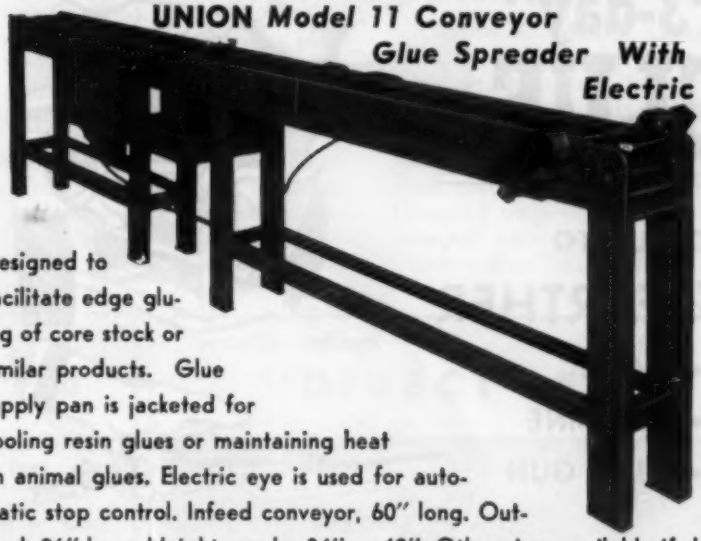
BARKER

(1) A logger who peels bark. (2) A machine to peel bark.

a UNION machine . . .
TO MEET ANY WOOD GLUING NEED

UNION SERVES OVER 1,600 SATISFIED CUSTOMERS

UNION *Model 11 Conveyor Glue Spreader With Electric Eye!*



Designed to facilitate edge gluing of core stock or similar products. Glue supply pan is jacketed for cooling resin glues or maintaining heat on animal glues. Electric eye is used for automatic stop control. Infeed conveyor, 60" long. Outfeed, 96" long. Height can be 34" or 42". Other sizes available if desired. NOTE: Any Union spreader is available equipped with rubber-covered doctor roll, if desired, at no extra cost.

UNION AIR-POWER MIXER

Revolutionary air cylinder drive eliminates expensive electric motor and electrical connections of any kind. Mixes inflammables safely—no spark or static. Mixes any adhesive an oscillating beater can handle. Pressure discharge works while mixer oscillates. Speed can be varied from 0 to 90 oscillations per minute. Working capacity—Model M10, 10 gal.; M20, 20 gal.

Write for data on the complete Union line. Union agent's name in your territory supplied on request.

Write for your free copy, "The How's and Why's of Wood Gluing," written by Thomas D. Perry.

UNION TOOL CORP.
312 EAST MARKET STREET
WARSAW, INDIANA, U. S. A.

USERS SAY UNION CUTS COSTS — SPEEDS PRODUCTION

Associate Director of the Minnesota Mining & Mfg. Co., St. Paul, Minn. DR. MATTHEW W. MILLER and DR. H. M. SCHOLBERG were named assistant directors.

LEWIS R. GROSENBAUGH is appointed Chief of the Division of Forest Management Research of the Southern Forest Experiment Station, New Orleans, La.

Deaths

ARTHUR TEMPLE, President of the Southern Pine Lumber Co., and an outstanding leader in the lumber industry, died November 28, 1951.

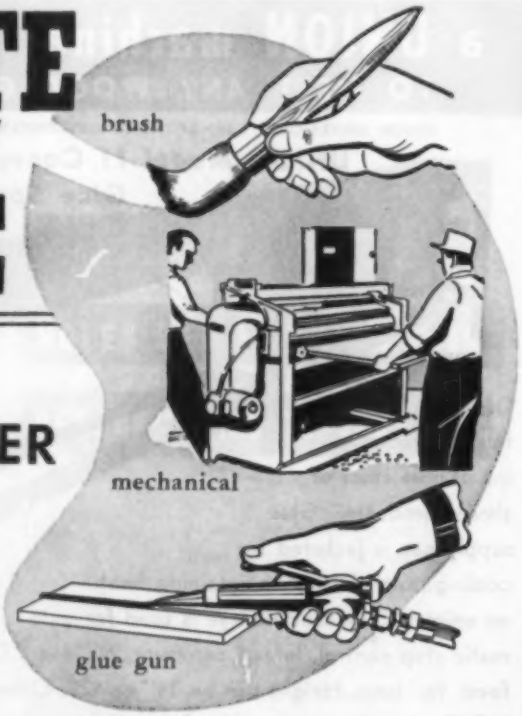
JOHN WOOD BLODGETT, 91, lumberman and philanthropist, died at his home in Grand Rapids, Mich.

EDWARD S. PRICE, 82, who founded the Headliner Co., a wood manufacturing concern in Ohio and Michigan, died recently in Oak Harbor, Ohio.

KURT STOEHR, 70, Vice-President of the Oconto Co., the recently-sold Bay de Noquet Lumber Co., and the Northern Hardwood and Hemlock Association, died in Evanston, Ill.

FRED SCHEIDEGGER, 68, President of the Scheidegger Woodwork Supply Co., Chattanooga, Tenn., died at a local hospital in that city.

MONITE "3-day" GLUE



SPREADS UP TO 30% FARTHER by • HAND • MACHINE • GLUE GUN

The CASEIN GLUE with 3-DAY POT LIFE!

MONITE "3-DAY" Casein Glue has good water resistance and great strength, 'stainsless', and remains usable 3 days or more.

SPREADS EASILY by brush, gun or mechanical glue spreader.

SPREADS up to 30% FARTHER than ordinary casein glues.

LOW pH means practical freedom from glue stain on woods such as oak.

INVESTIGATE the savings in time and material you can make with MONITE "3-Day" Casein Glue.

A FREE Copy of "The First Pair of Skis", a romantic story written by H. L. Prestholdt, Monite Waterproof Glue Co., is available on request. Write TODAY.

WRITE TODAY FOR FREE TEST SAMPLE!

TRADE MARK MONITE WATERPROOF GLUE

MONITE WATERPROOF GLUE COMPANY
1628 NORTH 2ND, MINNEAPOLIS 11, MINNESOTA

Associations

JOHN B. VEACH, President of the Hardwood Corporation of America, Asheville, N. C., was elected President of the National Lumber Manufacturers Association, Washington, D. C.

Last month Mr. Veach was profiled in the WOOD SALUTES column. We wish to apologize for misspelling his name.

J. J. HOULIHAN has been appointed Inspector of the newly established inspection district of Missouri, Southern Illinois, Western Kentucky and Northwestern Tennessee, for the National Hardwood Lumber Association, Chicago, Ill. In the Albany, Georgia district, M. D. BASS has been appointed assistant to Deputy Inspector SAM BARNETT.

GEORGE CORRIGAN, Glidden, Wis., was elected President of the Timber Producers Association of Northern Michigan. H. L. ANDERSON, Wakefield, was named Treasurer, and LAUREL HEINSKE, Ironwood, became Secretary-Treasurer.

GEORGE L. DRAKE, Shelton, Wash., was elected President of the Society of American Foresters for the two-year term 1952-53.

NATIONAL ASSOCIATION OF HOME BUILDERS OF THE UNITED STATES will hold its 8th Annual Convention and Exposition in the Stevens and the Congress hotels in Chicago, January 20 to 24, 1952.

Retirements

CHARLES J. HUDSON, Quality Manager of the Abrasive Division, Norton Co., Worcester, Mass., retires after 34 years of service. He will be retained by the company as quality consultant to assist the Abrasive Division on quality control problems.

Mergers

OLIN INDUSTRIES, INC., East Alton, Ill., and FROST LUMBER INDUSTRIES, INC., Shreveport, La., have agreed upon a plan to consolidate their businesses and properties, it was announced recently by their respective Presidents, JOHN M. OLIN and FRANK T. WHITED.

ATLAS PLYWOOD CORP., Boston, Mass., has acquired control of PLYWOOD, INC., Detroit, Mich.

Expansions

OREGON WOODWORK, LTD., with two plants in Portland, Oregon, and one in Redding, Cal., has announced that it has leased the former Shevlin-Hixon Co. box factory and planing mill in Bend, Oregon.

The J. HERBERT BATE CO., Enterprise, Ore., has purchased the Lookinglass sawmill and the Wallowa planing mill, and all the timber holdings in Wallowa County of the PONDOSA PINE LUMBER CO. at Elgin, Ore.

UNITED STATES PLYWOOD CORP., New York, N. Y., has recently opened two new warehouses. One is located at 4480 Pacific Blvd., Los Angeles, Cal., with DONALD L. BRALEY named as manager. The other is at 764 Vandalia St., St. Paul, Minn., with B. W. THAYER as manager.

AMERICAN MACHINE & FOUNDRY COMPANY'S radial arm saw manufacturing subsidiary, DeWALT, INC., Lancaster, Pa., has purchased the complete "Monarch" woodworking machinery line of the AMERICAN SAW MILL MACHINERY CO. of Hackettstown, N. J.

BLAKE PAINT CORP., New York, N. Y., recently opened a new plant at 2494 S. Kuhl Ave. in Orlando, Fla.

REICHHOLD CHEMICALS, INC., New York City, announces their complete line of synthetic resins will be manufactured in Brazil by Resana S. A. Industrias, Quimicas, Sao Paulo. A new plant will be erected by Resana on the outskirts of Sao Paulo. The Managing Director of Resana is Gunner Orberg. Associated with him as Technical Manager of the new plant will be his brother, Carsten, a chemical engineering graduate of the University of Michigan.

ROYAL MANUFACTURING CO., Knoxville, Tenn., has purchased the furniture plant formerly operated by the ATLUMOR CO. in the Lonsdale section of that city.

The formation of NORTON BEHR-MANNING OVERSEAS, INC. is announced by the NORTON CO. of Worcester, Mass. and the BEHR-MANNING CORP. of Troy, N. Y. The new company will handle the export business and direct the subsidiary plant operations throughout the world. Headquarters will be in Worcester with branch offices in New Rochelle, N. Y. and New York City.

M AND M WOODWORKING CO. has just installed in its Plylock plant in Portland, Ore. what is said to be the largest plywood hot press ever built in America.

ASCOT WOOD PRODUCTS CO., 865 N. Sangamon St., Chicago 22, Ill., has been organized with Mel Harris as President, and is appointed national sales agents for the recently formed MAY PLYWOODS, INC., with Gordon S. May as President at the same address.

GEORGE E. MILLER LUMBER CO., Portland, Ore., has purchased an interest in the COAST RANGE TIMBER PRODUCTS CO. of Salem. The Salem firm has a dry kiln capacity of 80,000 feet and a complete manufacturing plant covering seven acres. The Miller Company owns mills at Sweet Home, Newport, Oswego, and is constructing a new mill at Toledo, Ore.

Facilities To Serve You

DRY KILNS—20 Tracks of Latest Moore Design Capacity 1 million feet per charge.

DRY SHEDS—Ample storage Adjacent to Carline Means Dry Lumber for you.

DRY LOADING DOCK—Can Load 19 Cars Under Roof. Assures you quick Shipment Regardless of Weather.

THERE IS NEVER A LET DOWN IN OUR QUALITY-PRECISION MANUFACTURE

The Ralph L. SMITH Lumber Company

ANDERSON, CALIF.

WESTERN PINE ASSOCIATION WPA

Mills: Anderson & Canby, California
Sales Office: Anderson, California

NORTH COAST DRY KILN
"DIRECT-FLO"

Reversible Circulation • Uniform Drying
NEW KILNS • KILN MODERNIZATION • KILN ACCESSORIES

The North Coast Dry Kiln is the most efficient kiln in operation today. The fans are positioned at the side of the lumber loads so that air follows the shortest possible "Direct-Flo" path. This insures uniform efficient drying for the lowest possible power consumption.

We can manufacture kilns to your specifications.

Write for details to Dept. W-3.

Manufacturers and Engineers

OFFICES AND WAREHOUSES IN
SAN FRANCISCO, CALIFORNIA
LOS ANGELES, CALIFORNIA
HONOLULU, HAWAII - MANILA, P. P.
VANCOUVER, BRITISH COLUMBIA

C. M. LOUSTED & CO., INC.
ENGINEERS AND MANUFACTURERS
4000 W. MARGINAL WAY · SEATTLE 6, WASH
PHONE AValon 4000

KILN DRIED LUMBER

FOR

immediate shipment

EITHER TRUCKLOAD OR CARLOAD LOTS

Northern Hardwoods

Basswood	4/4 to 6/4
Birch	4/4 to 8/4
Hard Maple	4/4 to 8/4
Soft Elm	4/4 to 12/4

Appalachian Hardwoods

Beech	5/8 to 10/4
Red Oak	5/8 to 8/4
White Oak	5/8 to 8/4

Southern Hardwoods

Ash	4/4 to 8/4
Basswood	4/4 to 6/4
Hackberry	4/4,to 5/4
Sap Gum	5/8 to 8/4
Tupelo Gum	4/4 to 8/4
Red Gum	4/4
Soft Maple	4/4 to 12/4
Sycamore	5/8, to 8/4
Poplar	3/4 to 12/4
Hickory (AD)	8/4
Cypress (AD)	4/4

Mahogany

Honduras	3/4 to 12/4

Walnut

Steamed	5/8 to 8/4

Pine

Parana (Brazilian)	4/4, 5/4

The above hardwoods are in No. 1 Com. & Better Grades

and generally are available in higher grades.

Your inquiry will receive prompt and courteous attention

MONARCH HARDWOOD LUMBER CO.

3304 W. Belmont Ave.

Chicago, Ill. Tel. JUniper 8-1234

NEW

Products . . . . processes
equipment . . . . methods
materials & developments

Diesel Power for Yardlift-40

New diesel power for the Yardlift-40 fork-lift is available from the Clark Equipment Company, Industrial Truck Division, Dept. W, Battle Creek, Mich.

The engine, a Model DIX-4D by Hercules, has a bore of 3⅜ in. and a stroke of 4 in. Displacement is 166 in., giving a brake horsepower of 44 at 1950 r.p.m. Maximum torque developed is 118 ft/lbs.

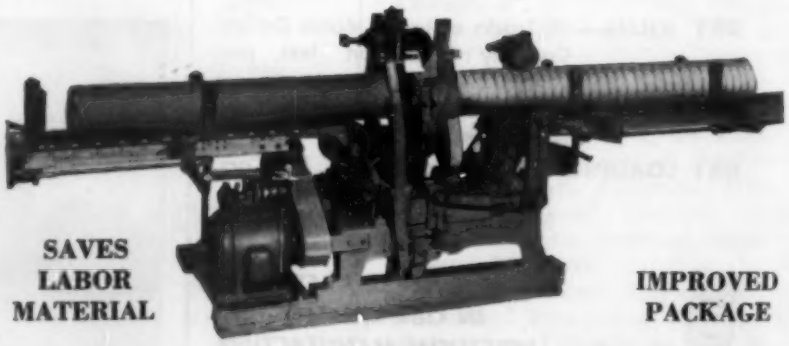
Major specifications, such as 85½ in. turning radius, overall width of 41⅛ in., length, etc., remain the same with the new engine as for the present Yardlift-40.

Extra-Duty Chain Saw

A light-weight, two-man chain saw, which can be operated by one man and yet does the heaviest of heavy-duty jobs, has been put on the market by Henry Disston & Sons, Inc., Dept. W, Philadelphia, Pa.

The saw is the DA-211 Intermediate. For easy carrying over the steepest, roughest terrain, even though the

PIERCE MODEL D-S WRAPPING MACHINE



SAVES LABOR MATERIAL

IMPROVED PACKAGE

The Model D-S spiral wrapping machine is a production machine that wraps packaged window frames, bundles of slats or molding in 5 to 8 seconds. Each layer of paper is automatically glued to the preceding layer. The tight binding prevents any internal movement of individual boards during shipment—the usual cause of package breakage. Available on sale or lease basis.

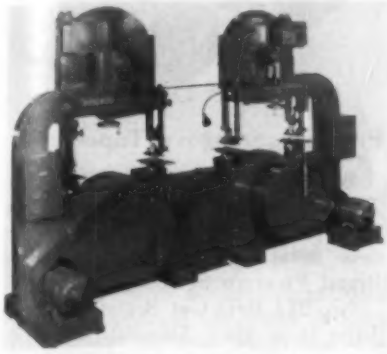
Write for specifications. *Send us your wrapping problem.*

PIERCE WRAPPING MACHINE COMPANY

Builders of production wrapping machinery since 1910

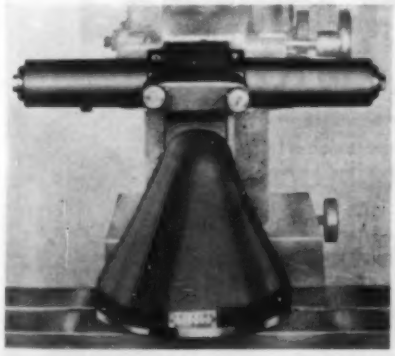
625 W. Jackson Blvd., -:- Chicago 6, Ill.

saw is powered by a rugged nine horsepower Mercury engine, it knocks down into two sections less than 35 pounds each. It has an automatic clutch, automatic chain oiler, non-clogging air intake, oversized cooling fan and simplified controls.



Twin Band Saw Unit

This machine, said to be the first of its kind ever built, was produced by The Tannewitz Works, Dept. W, Grand Rapids, Michigan. It has four cutting blades and was designed for cutting wide panels into three equal parts. The wheels are 36 in. in diameter and equipped with hydraulic brakes which automatically and instantly stop the machine in the case of saw blade breakage.



New Cutter Head Gauge

The Dependable Machine Company, Inc., Dept. W, Greensboro, North Carolina, announces that they have recently improved their Cutter Head Setting Gauge G-11 and G-11a. This gauge is designed for use in grinding side heads, moulder and profiler heads of the slip-on type. Although manufactured primarily for Dependable Cutter Grinders they can be adapted to other make machines.

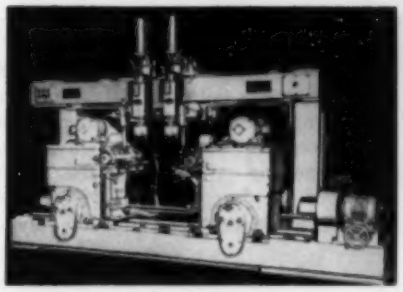
This gauge is now made with a built-in pointer for each arbor. The method of manufacture of the gauges has been improved to make them even more precise.

New TEFC Motors Bulletin

Construction details of Allis-Chalmers totally-enclosed, fan-cooled motor (Type APZ) are described in a new bulletin released by the company.

Due to the elimination of internal air passages and dirt-catching pockets, the motor is easy to keep clean. This feature, together with an efficient cooling system, makes the motor suitable for use where there is dust, dirt, fly ash, rain, snow or corrosive gases.

Copies of the bulletin are available upon request from Allis-Chalmers Mfg. Co., Dept. W, 1201 S. 70th Street, Milwaukee, Wis.



Double End Dovetailing Machine

The Bell Machine Co., Dept. W, Oshkosh, Wis., has introduced the new No. 200 Double End, Automatic Dovetailing Machine, which offers an

PRODUCTION GOES UP

KARBIDE KING SAWS . . . *give you longer operation, smoother joints, and less maintenance!*

YOUR production mounts as costs decline when you use Karbide King Saws for rip, cutoff, and trim sawing operations. This is because you no longer have to put up with expensive losses caused by frequent sharpening, ragged joints, and too much down-time. The superior design features plus the sound product engineering that goes into Karbide King Saws assure you of saws that will operate perfectly, week in and week out, producing finished parts with far greater accuracy than is possible with other type saws. Material waste is cut to a minimum because the smallest possible kerf consistent with full blade strength is maintained. Tooth shape is designed to give the best possible chip elimination, preventing gumming and allowing cooler operation.

Deluxe is willing to help you prove to yourself all these and many more advantages of using Karbide King Saws. Our engineering service is available at all times to insure the proper saws for your operations. Write today for complete information on how Karbide King Saws can help you.

• • • •

KARBIDE KING TOOL CORP.
SALES DIV. DELUXE SAW & TOOL CO.
2476 Blue Island Ave. • Chicago 8, Illinois

Branch Offices
415 E. Commerce St. — High Point, N. C.
366 Madison Ave. — N.Y. 17, N.Y.

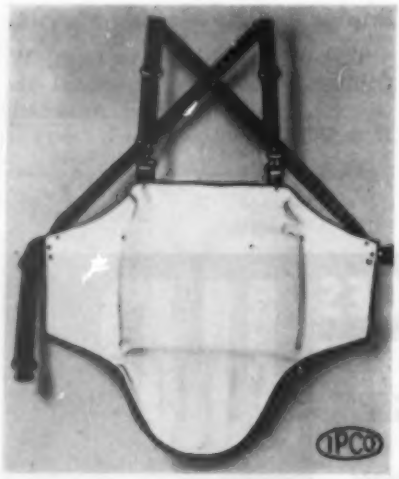
- Tough tungsten-carbide tips are brazed into highest quality steel saw body.
- Kerf dimensions made to your specifications.
- Teeth precision ground to the most exacting tolerances.
- Available for rip, cut-off and trim operations on many different materials such as: hardwoods, fibre boards, masonite, plywoods, plastics and insulations.

FULLY GUARANTEED
Fully guaranteed as to quality and workmanship.

COSTS COME DOWN

entirely new method for cutting furniture drawer dovetails.

It combines additional operations simultaneously with its main function by boring drawer fronts for hardware while cutting the female dovetails, and branding or stamping the trade name of the user on the inside of the drawer while cutting the male dovetail.



"Kick Back" Apron

A new protection apron is announced for men who operate power driven saws. The design of this new "Kick Back" Apron allows for protection from the diaphragm to below the waist in the forcible ejection of lumber.

It is made of heavy fibre shield on the inside, bound and strapped in convex position to cover the abdomen. The back of the apron is padded with hair felt, for comfort. Full information can be had from the Industrial Products Co., Dept. W, 3148 N. Fourth St., Philadelphia 33, Pa.

Self-Operated Controllers Bulletin

A new bulletin, No. 1320, on Tag Self-Operated Temperature and Pressure Controllers is now available from the Tagliabue Instruments Division, Western Electrical Instrument Corp., Dept. W, 614 Frelinghuysen Ave., Newark 5, N. J.

Designed for accurate temperature regulation and trouble-free operation in any kind of industrial plant, Tag temperature controllers are said to have a wide variety of applications, including use on hot water storage heaters, tanks, canning retorts, exhaust boxes, textile dryers, and scouring bowls.

Pressure Sensitive Tapes

Behr-Manning Corp., Dept. W, Troy, N. Y., Division of Norton Company, announces the addition of two new items to its line of Behr-Cat Brand Pressure Sensitive Tapes.

No. 211 Behr-Cat Brand Strapping Tape is a glass filament reinforced tape specifically designed for heavy duty service in the fields of strapping, packaging, banding and carton sealing.

No. 113 BEHR-CAT Brand Masking Tape has been developed especially for the difficult operation of masking off areas on anodized aluminum and magnesium as well as castings of these materials and their alloys, particularly where such parts are to be subjected to high temperatures.

PENOKEE
VENEER COMPANY

MANUFACTURERS OF
ROTARY, SLICED AND HALF-ROUND
VENEERS
IN
BIRCH—MAPLE—BASS—ASH—OAK—ELM—WHITE PINE

GENERAL OFFICES
MELLEN, WISCONSIN
P. O. BOX 110
TELETYPE, MELLEN 29—PHONES 205 - 3313

Penwood
PLYWOODS
Hardwood Plywoods for Quality Trade

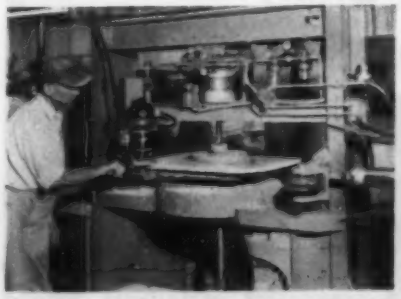
THE ARISTOCRATS IN
BIRCH—MAPLE—RED OAK—WHITE OAK—ASH—BASSWOOD—ELM—WALNUT—MAHOGANY
PLYWOODS

SPLICEDWOOD
CORPORATION
MELLEN, WISCONSIN
P. O. BOX 110
TELETYPE, MELLEN 29—PHONES 205 - 3313

Featherweight Spray Gun

A new type featherweight spray gun for increased versatility is being introduced by the DeVilbiss Co., Dept. W., 296 Phillips Ave., Toledo 1, Ohio. The gun, identified by the company as a Type TGA Spray Gun, is designed for a wide range of spray work requiring top finishing quality from touch-up of small spots to the refinishing of large objects. A fingertip adjustment control quickly provides a wide selection of spray patterns for various types of jobs and paint materials.

The TGA spray gun is designed for two types of feeds enabling a workeither suction or pressure feed, the man to spray all kinds of materials.



Contour Table-Top Machine

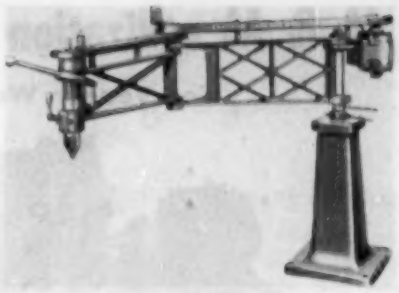
A new table-top machine, the Top-Master, has been developed by the Contour Co., Los Angeles. Ascot Products Co., Inc. Dept. W, 865 N. Sangamon St., Chicago 22, Ill. is exclusive sales agents. This machine is designed to eliminate operations and handlings of table tops, and speed production and cut costs.

It is said to groove and apply molding onto table tops in one operation; and in addition sands the edge of the top, eliminates the pre-bandsawing of the top, and has an attachment for boring.

Bulletin on Veneer-Lathe Drives

A new bulletin on electric veneer-lathe drives with amplidyne control now is available from the General Electric Company, Dept. W, Schenectady 5, New York.

The two-color publication uses nine photographs and a diagram in outlining the advantages of the new drives. The drives are available in all standard sizes up to 150 horsepower and higher. They are designed to give plywood producers high quality veneer, increased output, reduced waste, simplified lathe operation, reduced maintenance costs and operational economy.



Radial Arm Drills

Ekstrom, Carlson & Co., Dept. W, 1400 Railroad Ave., Rockford, Ill., has reinstated their No. 30 (30-in) and No. 71 (71-in) Radial Arm Drills to

Production was doubled by a manufacturer of salad bowls who switched to Jewel Brand Garnet Abrasive Belts with the exclusive Velvet Joint. Previously used belts had caused gouged edges and uneven finish.

And manufacturers of fine television cabinets are finding that Jewel Brand Natural Garnet Abrasives produce a better finish, faster . . . and at less cost than synthetic grits.

THERE'S A JEWEL BRAND COATED ABRASIVE to do every job, large or small, and to do that job *quicker, cleaner,* at *lower cost!* Ask your distributor or write on business letterhead for catalog. Abrasive Products, Inc., 551 Pearl Street, South Braintree 85, Mass.

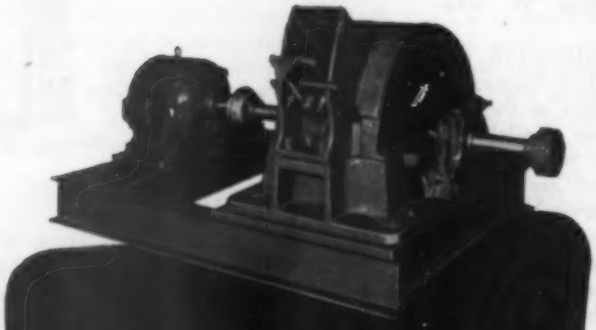
SHARPER, TOUGHER

Jewel COATED Abrasives

CUT COSTS!

M & M utilization equipment

For Veneer Waste



Let M & M Disposal Equipment turn your waste into profits. These machines are built in many types and sizes for slabs, edgings, trim, blocks, veneer, bark, and other combustible waste. Don't overlook the extra dollars that can come from utilizing every available bit of waste. Send us your problem and we'll show you how M & M Disposal Equipment can solve it.

MITTS & MERRILL

1018 South Water • SAGINAW, MICHIGAN

STEP-UP DOOR AND SASH PRODUCTION with SHIMER

COPE HEADS

CUSTOM-BUILT TO PRODUCE THE EXACT COUNTERPART OF THE DOOR AND SASH PATTERN

Carefully machined from alloy steel forgings -- brute strength to withstand rugged service! Equipped with long-lasting Shimer Circular Bits that outwear conventional straight-type bits many times!

Write for your copy of PATTERN BOOK 51

HAVE A SPECIAL CUTTING PROBLEM ? There's a Shimer Head for every purpose

Manufacturers Of The THE SHIMER CUTTER HEAD Shimer Cutter Heads

SAMUEL J. SHIMER & SONS, Inc.

MILTON, PENNA

FAMOWOOD . . . *the AMAZING*

ALL-PURPOSE PLACTIC for wood finishes!

. . . Applies like putty . . . Sticks like glue!

FAMOWOOD is the answer . . . where wood finishes are important. Simple to use . . . efficient, lasting, time-saving, when filling wood cracks, gouges, nail and screw holes or correcting defects. Dries quickly, does not shrink. *Stays put* under adverse conditions.

FAMOWOOD sands easily, does not gum up sander. *Takes spirit dye stains freely.* Waterproof and weatherproof when properly applied. Ready to use—*"right out of the can."* Fifteen matching wood colors . . . with amazing matchless wood finishes.

Used by . . . Furniture MFGS • Sash and Door Mfgs. • Cabinet Makers • Contractors • Boat Builders • Painters • Aircraft Plants • Pattern Shops • Home Builders • All Wood Products

FAMOWOOD descriptive literature & price list on request.
Distributor & Dealer inquiries invited, write Dept. WR-3

BEVERLY MANUFACTURING COMPANY

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Manufacturers of . . . FAMOWOOD • FAMOGLAZE • FAMOSOLVENT

WILLOW

IS FEATURED IN '52

FOR FURNITURE CABINETS PANELING CASKETS

Our three mills are located in the Mississippi, Atchafalaya and Red River basins of Louisiana which produce the finest Willow in America.

Large and well assorted stocks of this fine willow are ready for immediate mill shipments at all times. We can meet your exact needs, all thicknesses and grades 5/8" to 12/4". Mixed cars with Port Barre white ash and other Southern Hardwoods. Prompt attention will be given to all inquiries.

The Port Barre Lumber Industries, Inc.

Manufacturers of Southern Hardwoods
Port Barre, La.

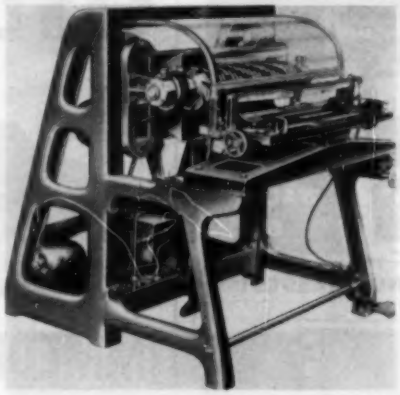
their line of production equipment for the wood-working industry. These units were designed for fast, light drilling and are adaptable for both single piece and production runs with equal efficiency.

Available again are four types of each of the two sizes and are as follows: *Type A* employs a large nut for mounting the complete unit on a table or stand. *Type B* embodies a threaded post and support bracket for mounting unit on a table or stand, but this unit can be vertically adjusted up to six inches. *Type C* is identical in construction to *Type B* except that it comes equipped with its own cast iron base. *Type D* can be furnished in any of the three aforementioned mountings. It differs from *Types A, B,* and *C* in that there is no outer sleeve and inner spindle assembly.

New Non-Craze, Urea Resin Glue

A new glue, National FA-300, is said to have excellent gap filling qualities and give a non-craze glue line. FA-300 can be used for joint gluing where adequate pressure is a problem. It is also used for bonding decorative plastic sheets to plywood where low bonding pressures are required.

It can be used in hot or cold press work and is said to give glue lines which pass Federal Specification CG-496. Additional information may be obtained from National Casein, Dept. W. 601 W. 80th St., Chicago 20, Ill.



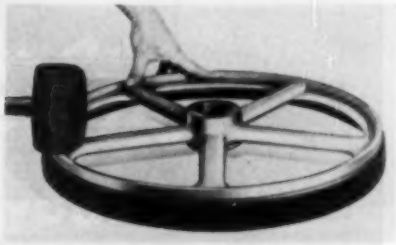
Multiple Tenoning Machine

The Woodworking Precision Machinery & Tool Co., Inc., Dept. W, 224 Fifth Ave., New York 1, N. Y., is introducing a Swiss made high production multiple tenoning machine.

This machine is called the Wigo-Express and is especially designed for box manufacturers. In this unit the stock is held stationery as the cutting head moves. It comes in three sizes allowing the following lengths of stock to be cut at one time—17", 25", 30". A production rate of 100 cases per hour can be achieved with this machine.

Industrial Equipment Catalog

A 28-page catalog that makes it easy for any firm to select the right type of conveyors, trucks, and industrial casters has just been published by The Rapids-Standard Company, Inc., Dept. W, Grand Rapids, Michigan. The new catalog has hundreds of photos, sketches and charts that show what each item of Rapistan equipment is, how it works, and what type of material it will handle.



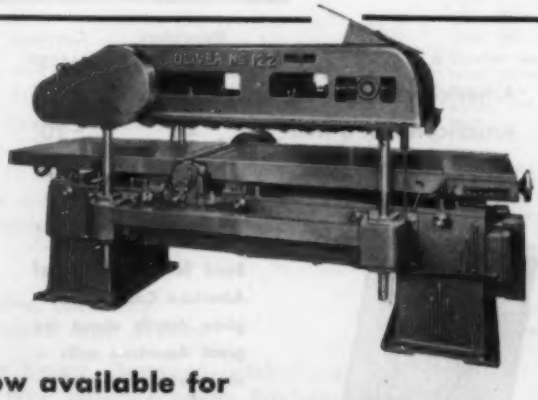
Jiffy-Tired Band Saw Wheel

To reduce "down" time chargeable to band saw wheel tire changes, the

"Oliver" Facing Planer

(AUTOMATIC FEED)

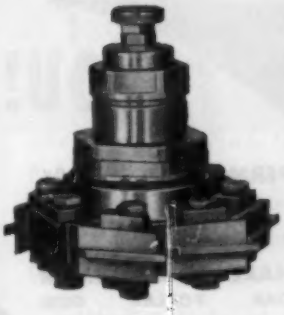
surfaces 20 to 60 lineal feet a minute



Now available for belt conveyor hook-up

This powerful 30-inch Facing Planer takes stock of almost any thickness and planes one side smooth and straight. Continuous automatic feed—20 to 60 feet a minute. This Planer is also built with short infeed table, short outfeed table, or both tables short, for feeding short stock from belt to belt. Handwheels and electrical controls furnished on either side of machine. *Write for Bulletin No. 122.*

OLIVER MACHINERY CO., GRAND RAPIDS 2, MICH.



Products of EXCLUSIVE Specialization

Whether you find the BADGER Trade-Mark on a complete cutterhead, a bar of shaper steel, a planer knife or a milled-to-pattern bit, you know it identifies a product of specialists . . . an organization devoted to the single purpose of continuously developing finer cutterhead equipment for woodworking machines.

Wisconsin's reputation as "Engineers to the Woodworking Industry" is also a "product" of this exclusive specialization.

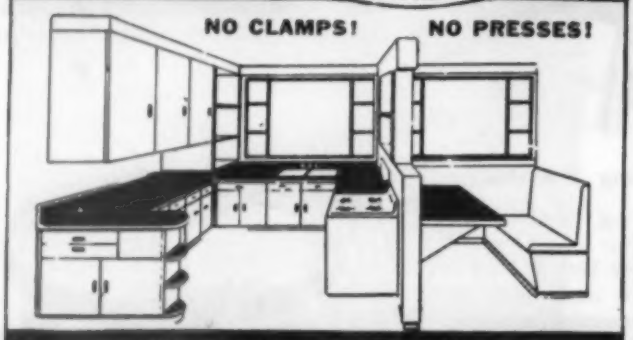
CUTTER HEADS BADGER KNIVES

Engineers to the Woodworking Industry

WISCONSIN KNIFE WORKS

BELOIT, WISCONSIN

A 3075-36



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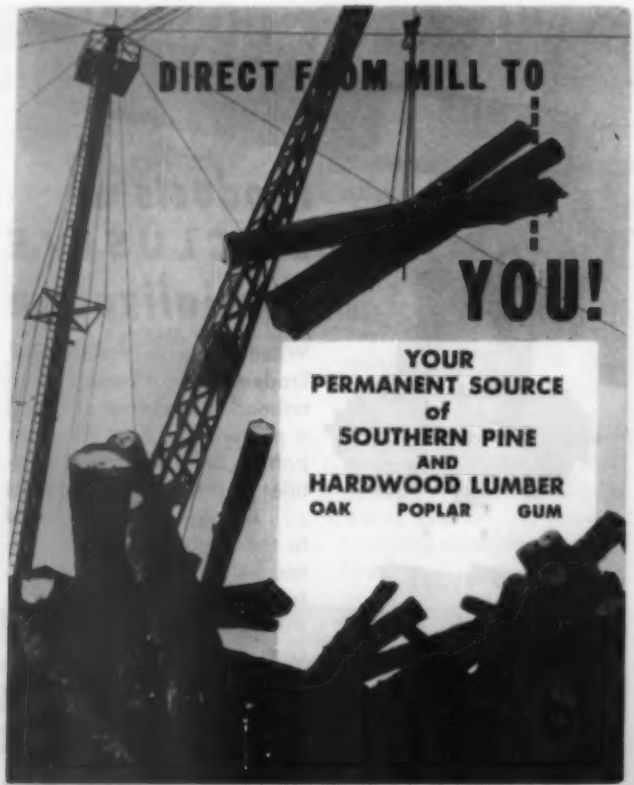


W. T. SMITH LUMBER CO.
CHAPMAN ALABAMA
67 YEARS OF MANUFACTURING YELLOW PINE AND HARDWOODS

American's THE BUY!

IMMEDIATE DELIVERY!

Cash in on today's lumber profits with highly-efficient, modern American equipment

★ **MORE ACCURATE CUTTING** proved over nearly half a century of use.

★ **FASTER SAWING** with American's high-tension feed.

★ **GREATER SAFETY** with American's great protection features.

★ **LONGER LIFE** and lowest upkeep with American's rugged construction.

Thousands of Experienced Lumbermen Rely on The Great American Saw Mills, Edgers, Trimmers, Cut-off Saws and Shingle Machines.

	Headblock Opening	Carriage Length
American No. 1 Mill	38"	16'
American No. 3 Mill	44"	20'
American Porta-Mill	34"	10'

Write Today for Details About American —

Send for your copy of American Catalog A50— gives details about the great American mills — choice of leading lumbermen for two generations.

AMERICAN SAW MILL MACHINERY CO.
Established 1903
HACKETTSTOWN, N. J.
"American" Saw Mills and "Monarch" Woodworking Equipment

Yates-American J-120 Band Saw is equipped with the new Jiffy Tire. Produced by the Carter Products Company, the Jiffy Tire is designed for dependable, long-life service and for simplified replacement in the field. To remove a Jiffy Tire, the user merely saws through the metal strip enclosed within the tire, and the tire pops free of the wheel. For further information, write the Yates-American Machine Co., Dept. W, Beloit, Wis.

"Lumber Harvester"

The Jackson "Lumber Harvester" is a new portable lumber producing machine designed for use by large and small commercial lumber companies as a practical answer to the

New Cutter Head Grinder

The Dependable Machine Company, Inc., Dept. W, Greensboro, North Carolina, announces the development of a new Universal Cutter Grinder Model 106-A.

It has a ball bearing table meeting machine tool standards for ease of operation. Although the table weighs two hundred pounds it can be operated, it is said, with the end of your little finger by means of a hand wheel and travels full 20 in. on ball bearing ways. This is said to insure easy travel and it is very rigid. Spring loaded stops are provided for each end of the table.

Catalog for Poly Grinders and Arbors

An 8-page illustrated catalog has just been issued by Poly Products, Dept. W, Pasadena 8, Cal., containing information on their complete line of ball bearing bench grinders, arbors, sanding discs and face plates. Included are specifications, dimensional diagrams, and application suggestions for using the Saw and Adapter Arbors to build a wide variety of special production tools.

National has the right glues for your job . . .

★ Exterior and interior plywoods.
★ Machine edge gluing and hand work.
★ Decorative plastics.
★ Chip board manufacture.
★ Laminating hardboards, veneer splicing, laminated rafters.
★ Glues to pass all government specifications.

Contact office nearest you, no obligation.

No matter how BIG your glue order . . . or how *small* — NATIONAL CASEIN is equipped to handle it with speed, economy — and *infinite* attention to every formula detail. Same-day service is yours on most orders. Tank car and tank truck shipments take a little longer.

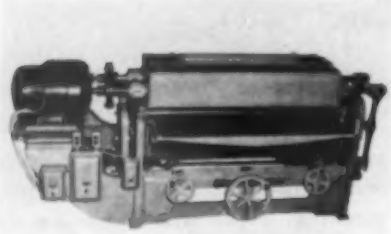
Adequate stocks of all but special formula glues are maintained at both Chicago and Riverton. Try us once . . . you'll stick with NATIONAL CASEIN glues because they *stick* for you.

National Casein

605-19 West 80th Street, Chicago 20, Illinois. Broad & Fulton Sts., Riverton, N. J.

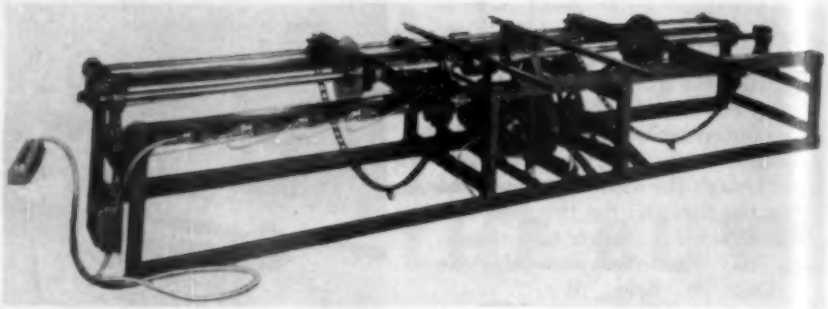
increasing problem of utilizing scattered, second-growth tracts.

This machine requires only one skilled operator, and is manufactured by Jackson Lumber Harvester, Inc., Dept. W, Brewton, Ala.



Precision Sander

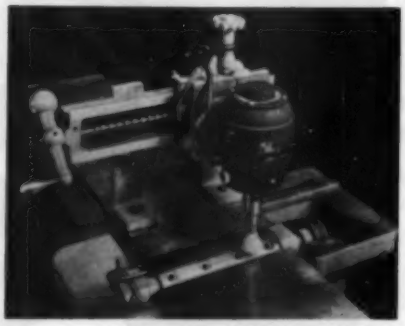
The Beach Manufacturing Co., Dept. W, Montrose, Penna., announces a machine designed to accurately finish plastic, metal, or wood surfaces to close tolerances. This machine, the No. 9 Precision Sander, is said to feed material ranging from 1/32-in. to 6-in. in thickness and up to 54 in. in width. Ground steel rolls located directly under the abrasive drums supports the material and is said to assure a uniformly finished surface over the entire sheet.



Two Saw Trimmer

A new item, just announced, is the Wheland 0-28 Iron and Steel Two Saw Trimmer, with electric shift as optional equipment. The push button control can be located to suit operator's convenience. This saw is designed for one man operation, all controls being easily accessible.

Two speed feed works is self-contained and built into the frame. One can start, stop or change speed with the single conveniently located lever. For more information, write the Wheland Company, Dept. W, Chattanooga, Tenn.



Knife Grinding Attachment

The Delta Power Tool Division of the Rockwell Manufacturing Company announces a new knife grinding attachment for the Delta 8" Jointer. This device makes it possible to resharpen blades without removing the cutterhead from the machine.

This jointer and the knife grinding attachment are sold through the Delta dealer organization. Further infor-

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mation regarding this machine and its attachments may be obtained by writing to the Delta Power Tool Division of the Rockwell Manufacturing Company, Dept. W, 600 East Vienna Avenue, Milwaukee, Wis.

New Adhesive for Hardboards

SNYCO 131 is a new adhesive for bonding treated and un-treated hardboards, and was introduced by the Sndyer Chemical Corp., Dept. W, Bethel, Conn. This new adhesive is said to give waterproof, boil-proof bonds when applied by cold press or hot press stored heat or high frequency method. Samples and technical data may be had by writing the manufacturers at the above address.

Drill with 3/8-In. Chuck

A new drill with a ⅜-in. chuck and a swivel ball side handle for two-handed operation is announced.

This two-handed drill is designed for vehicle body manufacturing and maintenance shops.

Full information may be obtained from Cummins Portable Tools, Division of Cummins-Chicago Corp., Dept. W, 4740 N. Ravenswood Ave., Chicago 40, Ill.

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Material Handling Economy at the Box Plant

High speed production equipment is necessary, says Peter Grant, to speed up handling of materials

Today's modern box factory is equipped with first class equipment and is streamlined to take advantage of the various shifts of material required in transporting lumber from the planers through the various machining processes required to either the nailing machines or the tying machines.

Lumber from drying yards or sheds is delivered to the plant via crane, lift truck, straddle carrier, or kiln cars just as in any other modern woodworking plant. In the yard of a large West Coast box factory lift trucks and straddle carriers shuttle back and forth between the yard and convenient transfer points beneath an overhead monorail line and all lumber is delivered to the planers by electrically operated monorail cars. Lumber loads are picked up or set down by chain hoists.

At another plant, in the Northeast, all lumber is delivered into the plant by chain conveyor which offbears a sorting chain where all lumber is sorted to select lumber for processing at an adjacent planing mill into building and construction lumber as well as box lumber. The better grade of lumber is pulled off into hand sort packages while the box lumber is delivered to the chain conveyor.

Fork lift trucks are used at a Southern box plant to deposit lumber loads on a live-roller conveyor for delivery to a tilting breakdown hoist for automatic feeding to the planer. After traveling over gravity rolls from the outfeed end of the planer, another live-roller conveyor line moves lumber from the planer to the cut-off saws.

The larger plants are usually completely conveyorized but smaller plants often use a combination of conveyors and pallets or skids that are moved between machines by hand-operated jack trucks or small electric or gasoline-powered lift transfer trucks.

Dressed lumber from the planers is usually delivered to some form of power conveyor for transfer to the cut-off saws. This lumber may be fed by gravity from the outfeed end of the planer onto a wide belt or chain conveyor on which it is carried to the cut-off saws, or it may be deposited upon live rolls, controlled by the cut-off saw operators.

In some cases as it is cut, the stock falls off onto short sections of gravity conveyor, over which it passes to a tail-off table for sorting into main cuts and cleat cuts for the rip saws and resaws. In other installations short flat belts offbear from the cut-off saws to a large belt conveyor running the full length of the cut-off line for delivery of cut stock to the rip saws for cutting out defects and fitting.

At an Oregon box plant where each cut-off saw has its own offbearer, two belt conveyor lines are used, one in front and positioned at above knee level of the sorters and the other about waist high and in back of the sorters. Main cuts coming over a short gravity conveyor from the cut-off saws are placed on the belt conveyor behind the sorter for delivery to a line of vertical resaws, and cleat cuts are placed on the belt beneath the tail-off table, to be carried to the cleat machines.

Waste Conveyor Increases Safety

Some form of waste conveyor is usually used to carry waste cuttings from the cut-off and rip saws away from the machines to keep the working areas clear and safe. Many of these are floor conveyors traveling just below the surface of the floor. The accident hazards provided by this type of conveyor installation has been eliminated in a Maine box factory by the use of an overhead waste conveyor belt fed by a conveyor trough beneath each machine.

The travel of stock-in-process depends upon individual plant operation and procedure. In many plants all shook and stock to be nailed are first assembled in thick plug form and then resawed to desired thickness. Units fitted at the rip saws are fed to the main conveyor line to be taken off further on for running through the matcher, gluer and squeezer. The glued-up panels are then placed on a spur conveyor for delivery to the equalizing saw, at which point they are joined by ends coming up from the corrugated stapler machines.

Stock tailed off from the equalizer either goes onto a conveyor leading to the automatic tying machines or is diverted to a conveyor for delivery to the resaw.

Conveyors from the resaws deliver stock either direct to the automatic tying machines or to the nailing machines for production of boxes. In some plants the nailers are so posi-

CONVEYORS from the resaws deliver stock to the tying machines or the nailing machines for production of boxes

tioned that nailed boxes can be deposited on the conveyors leading to the tying machines to be removed to a spur conveyor for delivery to sorting and shipping or storage areas before reaching the machine. At the nailing stations each nailer is fed end and panel assembly stock by a loop of belt and roller conveyor and the output of the machine is placed on a conveyor feeding the main conveyor previously mentioned.

Shook arriving at the automatic tying machines receiving table which does not need to be printed is tied immediately and delivered via gravity conveyor to be sorted for shipment to storage but stock that has to be printed is slid over the table surface to a conveyor leading to the printer where it is stacked until needed and in accordance with the capacity of the printer.

In many plants the cleat machines are arranged behind the resaws with conveyors leading from the tail-off side to the tying machine conveyor.

One unique conveyor arrangement has six lines of conveyors from resaw tail-off and stacking points leading into the receiving table servicing the automatic tying machines. The operator easily shifts stacks arriving over any line over the surface of the table and guides them into the automatic tying machine. A short section of gravity roller conveyor is used at the outfeed end of the tying machines from which the bundles are sorted onto pallets for storage or loading cars or trucks.

Two of the conveyors on this system have wide offsets, one to swing around a right and left hand resaw and the other around a pair of twin resaws. The base of the tying machines was set below the floor level to eliminate the need for power boosters but the other four lines are so long that they required short belt boosters. This system is arranged to serve not only the resaws but also a band rip saw, a printer and a battery of cleat machines.

In smaller plants where stock is moved from the cut-off saws on through the various operations on skids, small lift truck units are generally preferred. These may be of the modified fork lift type, either electric or gasoline powered, with the pallet loads carried in front of the operator or may be a powered jack truck that carries the load on a flat bed behind the operator. In the latter type of truck, hand controls are provided for starting, stopping, and raising and lowering the truck bed. All of these lift trucks are powerful though small, are easily maneuvered, and can be operated at very low cost.

Box shook in the form of strapped covers, ends and sides are often prepared for shipment by strapping into unitized load units on pallets. Nailed boxes do not lend themselves to this method of handling but are often piled into U-shaped frames or racks constructed on skids or pallets to permit handling with fork lift trucks. In some plants hand operated clamp trucks are used to carry nailed boxes to loading points for loading trucks or freight cars. In others some form of conveyor is used to make delivery from nailing machines direct to shipping or storage areas.

The average modern production box factory will cut about 6,500,000 board feet of lumber and use about 125 employees to work it up into shook and complete box units although some of the larger plants will average 11,000 board feet for each saw on the cut-off line. One plant with eight cut-off saws has cut as much as 106,000 feet in a single day. With the pacemaker machines cutting this volume of lumber, high speed production equipment is required for processing and mechanical handling is necessary to speed up the handling of materials.

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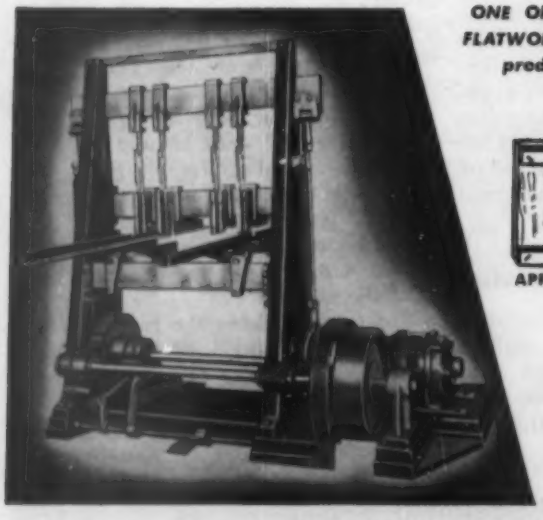

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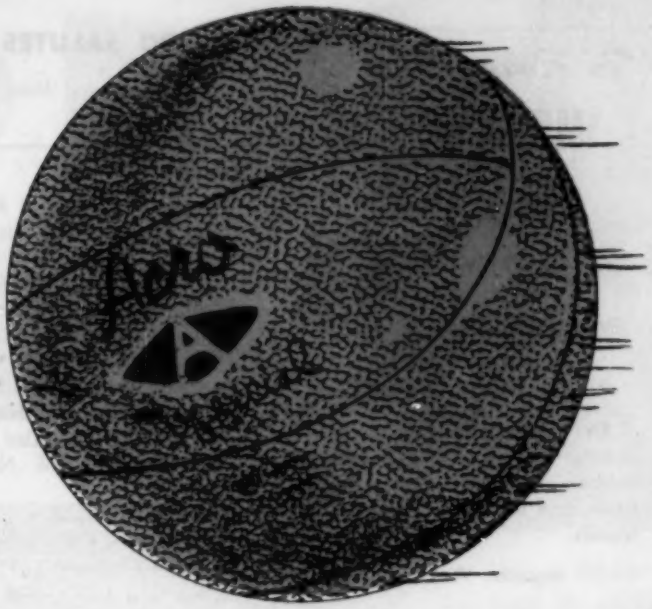

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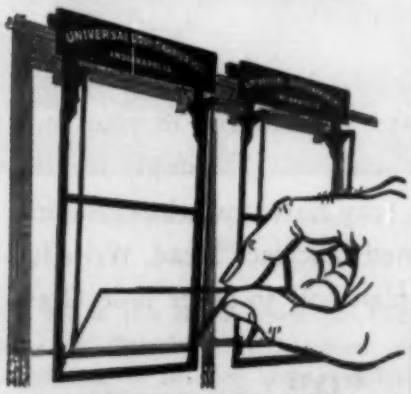

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WOOD SALUTES

(Continued from page 23)

GREELEY

Forester in charge of Forest Management. He served in this latter capacity from 1912 to 1917, with headquarters in Washington, D. C. From 1914 to 1916, he directed a comprehensive study of the lumber industry and in 1917 wrote a Forest Service bulletin entitled "Some Public and Economic Aspects of the Lumber Industry." At this time he was also directing sales and appraisals of National Forest timber.

Greeley helped organize the 10th Engineers, A.E.F., in 1917. He served in France from 1917 to 1919, as Major and Lieut. Col. of Engineers. During this period, he directed the Forestry Section, Service of Supply, with up to 20,000 troops and cutting 600 MM feet of French timber.

After World War I, Colonel Greeley served as Chief of the U. S. Forest Service from 1920 to 1928. In this capacity, he participated in nation-wide hearings of the Clarke-McNary Forestry Committee of the U. S. Congress and in the enactment of the Clarke-McNary cooperative forest protection act, during 1923-24.

Colonel Greeley now lives on a 37 acre Tree Farm at Gamble Bay, Washington. He spends all the time he can spare planting and thinning trees, gardening and riding herd on 11 grandchildren. His other interests include the progress of farm and industrial forestry and cooperation of forest industries.

CHEATHAM

was still selling.

"We knew we couldn't sit down and cry," Cheatham explains, "so we looked around for new fields to sell. A little checking revealed that Europe had also had a depression but was well on its way to recovery. So we went after the foreign markets."

Cheatham feels that a company should have young men in the top jobs in sales, accounting and finance. Older men, he feels, belong in the top spots in production.

"Young men have more pep," he explains. "They work harder and longer. They're more alert to new and changing ideas. They haven't stopped growing."

Cheatham himself qualifies as "young management". He goes at a mile-a-minute clip night and day. Five to ten minutes sleep—often caught on a transcontinental plane—seems to refresh him completely.

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